

COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Valley Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Coors Brewing Company - Shenandoah Brewery
3.5 miles south of Elkton on U.S. 340
Rockingham County, Virginia
Permit No. VRO81012

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Article 1, Coors Brewing Company - Shenandoah Brewery has applied for renewal of the Title V Operating Permit for its malt beverage manufacturing facility. The Department has reviewed the application and has prepared a Title V Operating Permit.

Engineer/Permit Contact:_____

Date: May 25, 2005

Air Permit Manager:_____

Date: May 27, 2005

Deputy Regional Director:_____

Date: May 27, 2005

FACILITY INFORMATION

Permittee

Coors Brewing Company
P. O. Box 25
Elkton, Virginia 22827

Facility

Shenandoah Brewery
3.5 miles north of Elkton on U.S. 340
Rockingham County, Virginia

Plant Identification Number: 51-165-0122

SOURCE DESCRIPTION

NAICS Code: 312120 - Malt Beverages

Coors Brewing Company, Shenandoah Brewery, is engaged in the manufacture of malt beverages. Currently the facility operates as a finishing (filtering and blending), packaging, warehousing, and redistribution center. Expansion of the facility to include brewing operations is planned.

The facility is a Title V major source of VOC and NO_x. This source is located in an attainment area for all pollutants, and is a PSD minor source. The facility was previously permitted under a minor new source review permit issued on August 21, 2002. The existing Title V permit for the facility was issued on June 6, 2000 and expires on June 6, 2005.

COMPLIANCE STATUS

The facility is inspected once every two years. Coors Brewing Company, Shenandoah Brewery, was last inspected on June 23, 2003, and found to be in compliance.

CHANGES TO TITLE V OPERATING PERMIT

On August 31, 2000, the Valley Regional Office received a request from Coors Brewing Company – Shenandoah Brewery (Coors) for a minor permit modification for their Title V operating permit. The request is to modify the Title V operating permit (Section VI, specifically) to allow operation of a biogas boiler and/or a biogas flare to destroy biogas emitted from the wastewater treatment process in operation at the facility. The Title V Permit was modified on November 7, 2000.

An administrative amendment to the Title V operating permit was issued on March 12, 2002 to change the Unit Reference Numbers for the six (6) natural gas fired boilers. This amendment also included update of the name of the responsible official and the contact person.

Also, a minor modification of the Title V operating permit was issued on January 16, 2003 to change the emissions limit for the packaging defill process (Unit 32). This modification also included update of the insignificant emission unit list.

As per Condition 58 of the facility's August 21, 2002 minor NSR permit, the authorization to construct and operate the brewhouse and two 97 MMBtu/hour boilers would have become invalid on June 20, 2004. In a letter dated April 28, 2004, DEQ extended the authorization to construct and operate the brewhouse and two 97 MMBtu/hour boilers until June 20, 2005. This approval was contingent upon timely and complete submittal of the revised application and BACT analyses by October 29, 2004. On October 28, 2004, the facility submitted the revised application and BACT analyses. As per the revised application, the emission units originally permitted will be essentially unchanged; however, the facility requested some amendments to the existing authorization to construct. Also, some emission units will not be constructed, and other emission units will change in operation or configuration.

The changes requested on the facility's revised application will be incorporated in the Title V Permit at a future date after the issuance of the minor new source review permit.

The following changes have been made to the existing Title V permit :

IV.B. Monitoring: The Compliance Assurance Monitoring (CAM) plans for fabric filters have been added.

V. Insignificant Emission Units: 5-liter keg can filling has been added to insignificant emission units to reflect the current application.

VII. Facility Wide Conditions: Condition D. has been updated to reflect DEQ's recent action to extend the authorization to construct and operate the brewhouse and two 97 MMBtu/hour boilers until June 20, 2005

X. General Conditions: The language of general conditions have been updated to reflect current boilerplate format. Also, Condition Y. (Asbestos Requirements) has been added to reflect the current boilerplate.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following :

Table I. Significant Emission Units.

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Fuel Burning Equipment							
1	V17-001	Cleaver Brooks boiler Model # D-34, Unit # W-3371 Constructed November, 1985	18 mmBTU/hr	-	-	-	08/21/2002
2	V17-001	Cleaver Brooks boiler Model # D-34, Unit # W-3371 Constructed November, 1985	18 mmBTU/hr	-	-	-	08/21/2002
3	V17-001	Cleaver Brooks boiler Model # D-34, Unit # W-3371 Constructed November, 1985	18 mmBTU/hr	-	-	-	08/21/2002
4	-	Nebraska boiler Model # NS-E-64 Constructed January 2002)	97 mmBTU/hr	Low NO _x Burners Flue Gas Recirculation	-	NO _x	08/21/2002
5	-	Nebraska boiler Model # NS-E-64 (not yet constructed)	97 mmBTU/hr	Low NO _x Burners Flue Gas Recirculation	-	NO _x	08/21/2002
6	-	Nebraska boiler Model # NS-E-64 (not yet constructed)	97 mmBTU/hr	Low NO _x Burners Flue Gas Recirculation	-	NO _x	08/21/2002
Brewing							
10	-	Grain handling system (not yet constructed)	-	Fabric Filters	-	PM PM-10	08/21/2002

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
20	-	Brewing process (not yet constructed)	10,000,000 barrels/yr	Heat Recovery System	-	PM VOC	08/21/2002
-	-	Filter Media Dryer (not yet constructed)	-	Wet Scrubber	-	PM PM-10	08/21/2002
21	-	Extract/Grain separation process (not yet constructed)	-	-	-	-	08/21/2002
22	-	Wort processing (not yet constructed)	-	-	-	-	08/21/2002
23	-	Fermenting (not yet constructed)	-	-	-	-	08/21/2002
24	-	Aging process (not yet constructed)	-	-	-	-	08/21/2002
25	V08-004 V08-008 V08-009 V08-010 V08-013	Conditioning process (Installed after 1972)	10,000,000 barrels/yr	Closed Vessels Under CO ₂ Gas Pressure During Storage and Cleaning	-	-	08/21/2002
26	V19-014 V19-015 WBT-001	By-Products handling system (Installed after 1972)	-	-	-	-	08/21/2002
13	-	Pelletizing process (not yet constructed)	-	Fabric Filter	-	PM PM-10	08/21/2002
15	-	Diatomaceous Earth Handling (not yet constructed)	-	Fabric Filter	-	PM PM-10	08/21/2002
16	V19-011	Lime Handling (Installed after 1972)	14,100 tons/yr	Fabric Filter	PCD-002	PM PM-10	08/21/2002

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Packaging							
27	V10-006 V10-007 V10-008 V10-009 V10-010 V10-011 V10-012 V10-013 V10-014	Packaging fillers process (Installed after 1972)	981 barrels/hr (cans) 872 barrels/hr (bottles) 450 barrels/hr (kegs)	-	-	-	08/21/2002
28	V10-006 V10-007 V10-008 V10-009 V10-010 V10-011 V10-012 V10-013 V10-014	Packaging Conveyor Lubrication (Installed after 1972)	-	-	-	-	08/21/2002
29	V10-006 V10-007 V10-008 V10-009 V10-010 V10-011 V10-012 V10-013 V10-014	Product Marking (Installed after 1972)	-	-	-	-	08/21/2002

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
30	V10-006 V10-007 V10-008 V10-009 V10-010 V10-011 V10-012 V10-013 V10-014	Carton Assembly and Label Application (Installed after 1972)	-	-	-	-	08/21/2002
32	V10-005	Packaging defill process (Installed after 1972)	1,182,600 lb/yr (aluminum) 19,272,000 lb/yr (glass)	Waste/Beer Collection System	-	-	08/21/2002
Wastewater Treatment							
33	V19-001 V19-002 V19-004 V19-005 V19-006 V19-007 V19-008 V19-009 V19-010 V19-012 V19-013	Wastewater treatment plant	2,000,000 gallons/day (prior to brewery construction) "unknown" gallons/day (after brewery construction)	VAREC Biogas flare	PCD-001	H ₂ S	08/21/2002

EMISSIONS INVENTORY

A copy of the 2003 annual emission update is attached as Attachment A. Emissions are summarized in the following tables.

Table II. 2003 Actual Criteria Pollutant Emissions.

	Criteria Pollutant Emissions (tons/yr)				
	VOC	CO	SO ₂	PM-10	NO _x
Fuel Burning (Units 1-6)	0.64	9.66	0.07	0.88	9.2
Waste Beer Tanks (Unit 26)	0.14	-	-	-	-
Carton Assembly and Label Application (Unit 30)	1.48	-	-	-	-
Blending and Finishing (Unit 25)	0.53	-	-	-	-
Waste Beer Tanks (Unit 26)	0.14	-	-	-	-
Waste Beer Defill (Unit 32)	3.20	-	-	-	-
Packaging Lines (Unit 27)	79.28	-	-	-	-
Product Marking (Unit 29)	2.61	-	-	-	-
Wastewater Treatment (Unit 33)	1.59	2.90	0.80	0.15	2.21
Total	89.4	12.56	0.87	1.03	11.40

EMISSION UNIT APPLICABLE REQUIREMENTS

Fuel Burning Equipment Requirements - Units 1, 2, 3, 4, 5, and 6

Limitations

The following limitations are requirements from the minor new source review permit issued on August 21, 2002. Please note that the condition numbers are from the 2002 permit; a copy of the permit is enclosed as Attachment B.

Condition 3: Requirement that nitrogen oxide emissions from the 97 mmBTU/hr

boilers be controlled by low NO_x burners.

Condition 22: Limit on the types of fuels to be combusted in the boilers. Natural gas and propane are the only approved fuels.

Condition 23: Limit on natural gas and propane throughputs to the 18 mmBTU/hr boilers.

Condition 24: Limit on natural gas and propane throughputs to the 97 mmBTU/hr boilers.

Condition 25: Limit such that the three 97 mmBTU/hr boilers can not be fired simultaneously.

Condition 26: Boiler emissions shall be controlled by proper operation and maintenance. Written operating procedures and a maintenance schedule will be maintained.

Condition 27: Short term emission limits for criteria pollutants from the 18 mmBTU/hr boilers.

Condition 28: Annual emission limits for criteria pollutants from the 18 mmBTU/hr boilers.

Condition 29: Short term emission limits for criteria pollutants from the 97 mmBTU/hr boilers.

Condition 30: Annual emission limits for criteria pollutants from the 97 mmBTU/hr boilers.

Condition 31: Visible emission limit for the 97 mmBTU/hr boilers of 5%, except during one six-minute period in any hour where visible emissions shall not exceed 20%.

The August 21, 2002, permit did not contain a visible emission limitation for the three 18 mmBTU/hr boilers. Therefore, the visible emission limitation for the units was taken from 9 VAC 5-50-80.

Monitoring

The monitoring requirements in Conditions 16, 17, 51, 53 and 54 of the minor new source review permit, dated August 21, 2002, have been modified to meet Part 70 requirements.

The permittee is required to install Equimeter Mark II Turbo-Meters on all six boilers.

These units will continuously measure and record the fuel gas flow to the boilers. This will satisfy the periodic monitoring requirements for the fuel throughput limits.

The permittee is required to install continuous emission monitoring systems to measure and record the concentration of NO_x emitted by the three 97 mmBTU/hr boilers. This will satisfy the periodic monitoring requirement for the NO_x emission limit contained within the permit for the three 97 mmBTU/hr boilers.

With the exception of NO_x emissions from the 97 mmBTU/hr boilers, actual emissions from the operation of the six boilers will be calculated using the following equations:

- For natural gas combustion:

$$E = F \times N$$

..... Equation 1

Where:

E = Emission Rate (lb/time period)

F = Pollutant specific emission factors as follows:

TSP	=	6.0 lb/million ft ³	(97 mmBTU/hr units & 18 mmBTU/hr units)
PM-10	=	6.0 lb/million ft ³	(97 mmBTU/hr units & 18 mmBTU/hr units)
SO ₂	=	1.0 lb/million ft ³	(97 mmBTU/hr units & 18 mmBTU/hr units)
CO	=	60.0 lb/million ft ³	(97 mmBTU/hr units)
		34.0 lb/million ft ³	(18 mmBTU/hr units)
NO _x	=	137.0 lb/million ft ³	(18 mmBTU/hr units)
VOC	=	3.0 lb/million ft ³	(97 mmBTU/hr units & 18 mmBTU/hr units)
Formaldehyde	=	0.155 lb/million ft ³	(97 mmBTU/hr units & 18 mmBTU/hr units)

N = Natural gas consumed (million ft³/time period)

- For propane combustion:

$$E = F \times P$$

..... Equation 2

Where:

E = Emission Rate (lb/time period)

F = Pollutant specific emission factors as follows:

TSP	=	0.6 lb/1000 gal	(97 mmBTU/hr units & 18 mmBTU/hr units)
PM-10	=	0.6 lb/1000 gal	(97 mmBTU/hr units & 18 mmBTU/hr units)
CO	=	5.5 lb/1000 gal	(97 mmBTU/hr units)
		3.2 lb/1000 gal	(18 mmBTU/hr units)
NO _x	=	19.1 lb/1000 gal	(18 mmBTU/hr units)
VOC	=	0.5 lb/1000 gal	(97 mmBTU/hr units & 18 mmBTU/hr units)

P = Propane consumed (1000 gal/time period)

The hourly emission limits established for all criteria pollutants (particulate, SO₂, NO_x, CO, and VOC) are based on the capacity of the boilers. Therefore, if the boilers are operated at capacity, or below, there should not be a violation of the hourly emission rates. Calculations have been included in Attachment C to demonstrate how the limits were obtained.

The annual emission limits established for all pollutants (particulate, SO₂, NO_x, CO, VOC, and formaldehyde) are based on the fuel usage limits contained within the permit. Regarding these pollutants, the fuel throughput is the factor that determines emission rates. Calculations have been included in Attachment C to demonstrate that if Coors does not violate the throughput limits contained in the permit, the pollutant emission limits will not be violated. Therefore, there is very little chance that the pollutant emission limits will be violated. Recordkeeping demonstrating the total amount of natural gas and propane combusted each year can be used to demonstrate compliance with the pollutant emission limits, satisfying the periodic monitoring requirement.

Based on the types of fuel to be combusted in the boilers, there is little likelihood of violating the opacity limitation. Therefore, as long as the boilers are operated properly it can be assumed that the opacity limitation will not be violated. Visible Emissions Evaluation (VEE) performed on Unit 4 (97 mmBtu/hr boiler) on April 30, 2002 resulted in 0% opacity. Maintenance of operating procedures and performance of maintenance in accordance with the maintenance schedule will ensure compliance with the opacity limitation and satisfy the periodic monitoring requirement for all six boilers.

Recordkeeping

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include fuel throughputs to each boiler, demonstration that all three 97 mmBTU/hr boilers have not operated simultaneously, and records of emission factors for use when calculating emission rates from the boilers.

Compliance Assurance Monitoring (CAM) Plan

The CAM does not apply to these boilers, as none of the boilers has potential pre-controlled emissions of any pollutant that exceeds major source threshold levels.

Testing

Initial performance testing is required for the two 97 mmBTU/hr boilers (Units 5 and 6) once they have been constructed. The initial tests are required for nitrogen oxide emissions as well as visible emissions. Testing is also required for the CEMS that must be installed on the two 97 mmBTU/hr boilers. The testing required in the Title V permit has been incorporated from Conditions 49 and 50 of the minor new source review permit.

A table of test methods has been included in the permit if testing is performed beyond that required in the permit. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The permit requires quarterly reporting for the three 97 mmBTU/hr boilers. Each report is due 30 days at the end of the calendar quarter, and must include: the source operating time, in hours; for each boiler operating day, the information required under 40 CFR 60.49b (g)(1), (g)(2), and (g)(3); the quality assurance information required under 40 CFR 60.49b (g)(10); the date(s) and time(s) of all outages of the NO_x continuous monitoring system, with reasons for the outages, and corrective actions taken; and the calculated hourly NO_x emission rates, in lbs/hr.

Notifications

The two 97 mmBTU/hr boilers (Units 5 and 6) have not yet been constructed. Therefore, the permittee has not fulfilled all of the notification requirements that are contained in the Condition 57 of the minor new source review permit. The notification requirements have been incorporated into the Title V permit.

Streamlined Requirements

The three 97 mmBTU/hr boilers are subject to 9 VAC 5-50-80, Standard for Visible Emissions. Under that regulation, the boilers may not emit visible emissions of greater than 20% except for on six minute period where visible emissions may not exceed 30%.

The minor NSR permit limits the visible emissions from the three 97 mmBTU/hr to 5%. Compliance with the permit requirement will ensure that the boilers are in compliance with 9 VAC 5-50-80. Therefore, 9 VAC 5-50-80 has been streamlined.

Condition 32 of the minor new source review permit has not been included because all applicable requirements from 40 CFR Part 60, Subpart Dc have been incorporated into the Title V permit.

Brewing Requirements - Units 10, 20, 21, 22, 23, 24, 25, 26, 13, 15, and 16

Limitations

The following limitations are requirements from the minor new source review permit issued on August 21, 2002. Please note that the condition numbers are from the 2002 permit; a copy of the permit is enclosed as Attachment B.

- Condition 4: Requirement that particulate matter emissions from the following processes be controlled by fabric filters: starch unloading system; starch brewhouse storage system; starch brewhouse distribution system; barley malt and rice receiving system; barley malt storage, screening, and milling system; rice storage, screening, and milling system; pellet bulk storage system; diatomaceous earth handling system; and, lime storage and handling system.

- Condition 5: Requirement to control particulate emissions from the filter media dryer with a wet scrubber.
- Condition 6: Requirement to apply VOC control equipment/measures to the extract/grain separation operation such that the VOC emission limit is not exceeded.
- Condition 7: Requirement to install an overhead compression/heat recovery system as an integral part of the brewing operation to control VOC emissions such that the VOC emission limit is not exceeded.
- Condition 8: Requirement to control VOC emissions from conditioning be controlled by maintaining closed vessels under CO₂ gas pressure during storage and cleaning operations.
- Condition 21: Requirement that all VOC emissions from all vents with emissions greater than one ton from fermentation, aging, and yeast and waste beer by-products operations be subject to review for the technical feasibility and cost-effectiveness of alternative control options.
- Condition 34: Limit on beer throughput prior to operation of the brewhouse.
- Condition 35: Limit on beer production with the commencement of the operation of the brewhouse.
- Condition 36: Limit on starch throughput.
- Condition 37: Limit on barley malt and rice throughput.
- Condition 38: Limit on diatomaceous earth throughput.
- Condition 39: Limit on lime throughput.
- Condition 40: Limit on pellet throughput.
- Condition 41: Limit on particulate emissions (TSP and PM-10) from the following processes: starch unloading system; starch brewhouse storage system; starch brewhouse distribution system; barley malt and rice receiving system; barley malt storage, screening, and milling system; rice storage, screening, and milling system; pellet bulk storage system; diatomaceous earth handling system; and, lime storage and handling system.
- Condition 42: VOC emission limits for conditioning and by-products handling

system for operations prior to operation of the brewhouse.

Condition 43: VOC emission limits for the following operations beginning with operation of the brewhouse: brewing process; extract/grain separation process; wort processing; fermentation; aging process; conditioning; and, by-products handling system.

Condition 44: Limit on particulate emissions (TSP and PM-10) from the filter media dryer.

Condition 45: Visible emission limit of 5% for all fabric filters.

No visible emission limit was included in the minor NSR permit for the operations emitting only VOCs (brewing process; extract/grain separation process; wort processing; fermentation; aging process; conditioning; and, by-products handling system). In addition, no visible emission limit was established for the filter media dryer. Therefore, a limit was established that corresponds to 9 VAC 5-50-80.

Compliance Assurance Monitoring (CAM) Plan for Fabric Filters

The fabric filters controlling particulate emissions from the following processes are subject to Compliance Assurance Monitoring (CAM) plans:

- starch unloading system (Unit 10)
- starch brewhouse storage system (Unit 10)
- starch brewhouse distribution system (Unit 10)
- barley malt and rice receiving system (Unit 10)
- barley malt storage, screening, and milling system (Unit 10)
- rice storage, screening, and milling system (Unit 10)

These fabric filters vent to atmosphere and have the potential to emit more than 100 tons per year of particulate matter.

The Fabric Filter CAM plan for Unit 10 (Attachment D) includes the following:

- Visible emissions have been selected as the first indicator because they are indicative of good operation and maintenance of a fabric filter. If the fabric filter is not functioning properly, visible emissions will be present and there is a chance that the facility is in danger of not meeting the 0.01 gr/dscf limit. Therefore, visible emissions are an acceptable performance indicator.
- The weekly visible emission evaluations of each fabric filter will satisfy the CAM requirement for the visible emission limitation. Frequent checks for visible emissions will limit malfunctions of the control equipment. As long as the control equipment is operating properly, there is little likelihood of violating the visible emission limitation.

The control equipment will limit the amount of particulate that is emitted, thereby limiting visible emissions. The permittee shall conduct at least once a week inspection of each fabric filter stack to determine the presence of visible emissions. If during the inspection visible emissions are observed, the permittee has one of the following options: (1) The permittee can accept this as an excursion, or (2) the permittee has option to conduct Method 9 VEE to determine whether an excursion has occurred. If the facility chooses Method 9 VEE, then the excursion is defined as an average opacity greater than 5% during one six minute period in any hour. Whichever option the permittee chooses, Quality Improvement Plan (QIP) shall be developed if two excursions per each control device occur in a two week period.

- The monthly and annual periodic structural inspections of the fabric filters satisfy the second CAM indicator for the control equipment. These inspections will alert personnel of bag deterioration and early maintenance requirements necessary to obtain proper control efficiencies.
- There is also a requirement in the permit for the facility to maintain devices to continuously measure the pressure drop across each fabric filter for verification of the operational status of each fabric filter.

Periodic Monitoring

The fabric filters controlling particulate emissions from the following processes do not have the potential to emit more than 100 tons per year of particulate matter:

- pellet bulk storage system (Unit 13)
- diatomaceous earth handling system (Unit 15)
- lime storage and handling system (Unit 16).

The fabric filters for Units 13, 15 and 16 are required to meet a particulate emission limitation of 0.01 gr/dscf. As long as the particulate emissions are vented through a properly operating control device, the standard is easily obtained. Therefore, as long as the control devices are properly maintained and operated, there is little likelihood of Coors violating the 0.01 gr/dscf standard.

If particulate control devices, such as fabric filters, are operating properly there should be no visible emissions from the units. This is the case because the devices eliminate the particulate, which are the source of the visible emissions. Therefore, if visible emissions are seen from any of the stack for Units 13, 15 and 16, it can be reasonably assumed that there is a problem with one of the control devices. Coors will be required to perform weekly inspections of each fabric filter stack for Units 13, 15 and 16. This inspection will include an observation of the presence of visible emissions. If visible emissions are found, Coors must perform timely corrective actions and return the stack to operating with no visible emissions. If 12 weeks pass with no visible emissions having been observed from a given stack, then the visible emission inspections for that stack may be reduced to monthly. As soon as visible emissions are noted during a monthly

inspection, the inspection frequency returns to weekly.

Visible emissions have been selected as the indicator because they are indicative of good operation and maintenance of a fabric filter. If the fabric filter is not functioning properly, visible emissions will be present and there is a chance that Coors is in danger of not meeting the 0.01 gr/dscf requirement. Therefore, visible emissions are an acceptable performance indicator.

The weekly/monthly inspections will also satisfy the periodic monitoring requirement for the visible emission limitation. Frequent checks for visible emissions will limit malfunctions of the control equipment. As long as the control equipment is operating properly, there is little likelihood of violating the visible emission limitation. The control equipment will limit the amount of particulate that is emitted thereby limiting visible emissions.

The filter media dryer requires operation of a wet scrubber to control particulate emissions. The particulate emissions from filter media drying are limited to 1.0 ton per year. The filter media dryer does not have the potential to emit more than 100 tons per year of particulate matter. As long as the particulate emissions are vented through a properly operating control device, the standard is easily obtained. Therefore, as long as the wet scrubber is properly maintained and operated, there is little likelihood of Coors violating the 1.0 ton per year standard.

If particulate control devices, such as scrubbers, are operating properly there should be no visible emissions from the units. This is the case because the devices eliminate the particulate, which are the source of the visible emissions. Therefore, if visible emissions are seen from the scrubber stack it can be reasonably assumed that there is a problem with the control device. Coors will be required to perform weekly inspections of the scrubber stack. This inspection will include an observation of the presence of visible emissions. If visible emissions are found, Coors must perform timely corrective actions and return the stack to operating with no visible emissions.

If 12 weeks pass with no visible emissions having been observed from the scrubber, then the visible emission inspections for that stack may be reduced to monthly. As soon as visible emissions are noted during a monthly inspection, the inspection frequency returns to weekly.

Visible emissions have been selected as the indicator because they are indicative of good operation and maintenance of a scrubber. If the scrubber is not functioning properly, visible emissions will be present and there is a chance that Coors is in danger of not meeting the 1.0 ton per year standard. Therefore, visible emissions are an acceptable performance indicator.

The weekly/monthly inspections will also satisfy the periodic monitoring requirement for the visible emission limitation. Frequent checks for visible emissions will limit malfunctions of the control equipment. As long as the control equipment is operating properly, there is little likelihood of violating the visible emission limitation. The control equipment will limit the amount of particulate that is emitted thereby limiting visible emissions.

There are also annual emission limits established for VOC (from brewing, extract/grain separation processes, wort processing, fermentation, aging, conditioning, and by-products

handling) which are based on the beer production/processing limits contained within the permit. Regarding VOC emissions, the beer production/processing rate is the factor that determines emission rates. Calculations have been included in Attachment C to demonstrate that if Coors does not violate the beer production/processing limits contained in the permit, the VOC emission limits will not be violated. Therefore, there is very little chance that the VOC emission limits will be violated. Recordkeeping demonstrating the total amount of beer produced/processed each year can be used to demonstrate compliance with the VOC emission limits, satisfying the periodic monitoring requirement.

Coors is also required to maintain records containing the DEQ-approved emission factors that are to be used to demonstrate compliance with the VOC limits contained in the permit. Actual VOC emissions from packaging operations will be calculated using the following equation:

$$E = T_x E F_x \frac{100 - C}{100}$$

..... Equation 3

Where:

E = VOC emission rate (lb/time period)
 T = Throughput to process (units vary)
 EF = Process specific VOC emission factor as follows:

Brewing	=	0.725	lb/1000 bbl of beer
Extract/Grain Processing	=	0.64	lb/1000 bbl of beer
Wort Processing	=	0.106	lb/1000 bbl of beer
Fermenting	=	5.1	lb/1000 bbl of beer
Aging	=	4.24	lb/1000 bbl of beer
Conditioning: Fill-On-Vent =	0.174	lb/1000	lb of CO ₂
Conditioning: Evacuation	=	1.05	lb/1000 bbl evacuated
By-Products Handling	=	15.112	lb/1000 bbl of beer

C = Control efficiency, if applicable (%)

All stacks associated with the brewing, extract/grain separation processing, wort processing, fermentation, aging, conditioning, and by-products handling emit only VOC. Due to the fact that no particulate emissions are expected, no visible emissions are expected. Therefore, there is little likelihood that the visible emission standard will ever be violated. No periodic monitoring is required for stacks that will only emit VOC.

Recordkeeping

The permit includes requirements for maintaining records of all monitoring and testing

required by the permit. These records include throughputs of all raw materials, total amount of beer brewed, total amount of beer wasted, and necessary records required by the CAM plan.

Testing

The permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

The permittee is required to submit a compliance report for the brewing process, fermentation, the aging process, and the by-products handling system within six months of commencement of operation of the brewhouse but in no event later than one year after commencement of operation of the brewhouse. The above mentioned processes rely on control practices/devices to meet their emission limits. The report requires Coors to go back in once the operation has reach a “steady-state” and ensure that the control options that they have chosen are controlling VOC emissions to the required levels.

Notifications

Most of the brewing equipment has not yet been constructed. Therefore, the permittee has not fulfilled all of the notification requirements that are contained in Condition 57 of the minor new source review permit. The notification requirements have been incorporated into the Title V permit.

Streamlined Requirements

The following processes have/will be constructed after March of 1972, and are subject to 9 VAC 5-50-80, Standard for Visible Emissions:

- starch unloading pneumatic system;
- starch brewhouse storage system;
- starch brewhouse distribution system;
- barley malt and rice receiving system;
- barley malt storage, screening, and milling system;
- rice storage, screening, and milling system;
- pellet bulk storage;

- diatomaceous earth handling system; and,
- lime storage and handling system.

Under that regulation, the units may not emit visible emissions of greater than 20% except for one six minute period where visible emissions may not exceed 30%.

The minor NSR permit limits the visible emissions from these operations to 5%. Compliance with the permit requirement will ensure that the units are in compliance with 9 VAC 5-50-80. Therefore, 9 VAC 5-50-80 has been streamlined.

Packaging Requirements - Units 27, 28, 29, 30, and 32

Limitations

The following limitations are requirements from the minor new source review permit issued on August 21, 2002. Please note that the condition numbers are from the 2002 permit; a copy of the permit is enclosed as Attachment B.

- Condition 9: Requirement to control VOC emissions from packaging through the use of beer dispensing technology and beer spillage management practices.
- Condition 10: Requirement to control VOC emissions from the defill operation through the use of a water/beer collection system.
- Condition 11: Requirement to control VOC emissions from conveyor line lubrication through the use of alternative lubricants, alternative lubrication methods, and lubricant spillage management practices.
- Condition 12: Requirement to control VOC emissions from product marking through the use of alternative technologies.
- Condition 13: Requirement to control VOC emissions from carton assembly and label application through the use of low-solvent based glues.
- Condition 34: Limit on beer throughput prior to operation of the brewhouse.
- Condition 35: Limit on beer throughput beginning with the operation of the brewhouse.
- Condition 42: VOC emission limits for the following operations prior to operation of the brewhouse: packaging; conveyor line lubricant; product marking; carton assembly; bottle label application; and, defilling.

Condition 43: VOC emission limits for the following operations beginning with operation of the brewhouse: packaging; conveyor line lubricant; product marking; carton assembly; bottle label application; and, defilling.

Monitoring and Recordkeeping

There are VOC emission limits established for all aspects of the packaging process (packaging, conveyor line lubrication, product marking, carton assembly, bottle label application, and defilling) which are based on the beer production/processing limits contained within the permit. Regarding VOC emissions, the beer production/processing rate is the factor that determines emission rates. Calculations have been included in Attachment C to demonstrate that if Coors does not violate the beer production/processing limits contained in the permit, the VOC emission limits will not be violated. Therefore, there is very little chance that the VOC emission limits will be violated. Recordkeeping demonstrating the total amount of beer produced/processed each year can be used to demonstrate compliance with the VOC emission limits, satisfying the periodic monitoring requirement.

Coors is also required to maintain records contained the DEQ-approved emission factors that are to be used to demonstrate compliance with the VOC limits contained in the permit. Actual VOC emissions from packaging operations will be calculated using the following equation:

$$E = T \times EF \times \frac{100 - C}{100}$$

..... Equation 4

Where:

E = VOC emission rate (lb/time period)
 T = Throughput to process (units vary)
 EF = Process specific VOC emission factor as follows:

Packaging: Bottles	=	36	lb/1000 bbl of beer
Packaging: Cans	=	37.5	lb/1000 bbl of beer
Packaging: Kegs	=	0.675	lb/1000 bbl of beer
Conveyor Line Lubrication =	2.32	lb/gal (or the VOC content on the certified MSDS sheet)	
Product Marking	=	9.28	lb/gal (or the VOC content on the certified MSDS sheet)
Carton Assembly	=	0.10	lb/gal (or the VOC content on the certified MSDS sheet)
Bottle Label Application	=	0.19	lb/gal (or the VOC content on the certified MSDS sheet)
Defilling: Bottles	=	0.001	lb/lb glass crushed
Defilling: Cans	=	0.035	lb/lb aluminum shredded

C = Control efficiency, if applicable (%)

Compliance Assurance Monitoring (CAM) Plan

CAM does not apply to these packaging units, as none of the packaging unit has add-on control device.

Testing

The permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

No specific reporting has been included in the permit for the packaging equipment.

Streamlined Requirements

There are no streamlined requirements for the packaging equipment.

Wastewater Treatment Requirements - Unit 33

Limitations

The following limitations are requirements from the minor new source review permit issued on August 21, 2002. Please note that the condition numbers are from the 2002 permit; a copy of the permit is enclosed as Attachment B.

- Condition 14: Requirement that the collection system for the wastewater treatment facility and influent structures be covered to prevent the escape of VOCs.
- Condition 15: Requirement that VOC emissions from the wastewater treatment facility be controlled by an advanced wastewater treatment system.
- Condition 47: Limit on approved fuels for the biogas flare and the flare pilot flame. The approved fuels are primary digester gas and propane, respectively.
- Condition 48: Limit on VOC emissions from the wastewater collection/treatment and sludge handling systems

Monitoring and Recordkeeping

The monitoring requirements in Condition 18 of the minor new source review permit have been modified to meet Part 70 requirements.

The permit requires Coors to operate a biogas flare to control VOC emissions from the wastewater treatment facility. The flare must be equipped with a monitoring device to ensure continuous operation, as well as an automatic shutoff device and re-ignition controls. This device will satisfy the periodic monitoring requirement for operation of the biogas flare.

There are VOC emission limits established for the wastewater collection/treatment and sludge handling system which are based on the beer production/processing limits contained within the permit and operation of the biogas flare. Regarding VOC emissions, the beer waste rate (which at worst case is all of the beer that can be produced/processed) is the factor that determines emission rates. Therefore, as long as the biogas flare is operating and the beer production/processing limit is not violated, there is very little chance that the VOC emission limits will be violated. Recordkeeping demonstrating the total amount of beer wasted each year can be used to demonstrate compliance with the VOC emission limits, satisfying the periodic monitoring requirement.

Compliance Assurance Monitoring (CAM) Plan

The CAM does not apply to these emission units, as none of the emission unit has potential pre-controlled emissions of any pollutant that exceeds major source threshold levels.

Testing

No specific testing requirement or test method has been included in the permit for the wastewater treatment facility.

Reporting

No specific reporting has been included in the permit for the wastewater treatment facility.

Streamlined Requirements

There are no streamlined requirements.

Facility Wide Requirements

The following requirements are from the minor new source review permit issued on August 21, 2002. Please note that the condition numbers are from the 2002 permit; a copy of the permit is enclosed as Attachment B.

Condition 46: Addresses PSD applicability.

Condition 62: Requirement to develop a maintenance schedule and maintain an inventory of spare parts for process and air pollution control equipment so as to minimize the duration and frequency of excess

emissions due to malfunctions.

Condition 62: Requirement to have operating procedures for air pollution control equipment and train employees in the proper operation of the equipment.

Condition 58 of the minor new source review permit addressing continuation of construction activity at the facility is revised as per DEQ's recent action. In a letter dated April 28, 2004, DEQ extended the authorization to construct and operate the brewhouse and two 97 MMBtu/hour boilers until June 20, 2005. Therefore, if construction on the next phase of the project has not commenced by June 20, 2005, the portions of the minor new source review and the Title V permit dealing with unconstructed units will no longer be valid.

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions, including those caused by upsets, within one business day.

STATE ONLY APPLICABLE REQUIREMENTS

Coors did not identify any state-only enforceable requirements in their application, and all requirements in the state operating permit are federally enforceable. Therefore, no state-only applicable requirements have been included in the permit.

FUTURE APPLICABLE REQUIREMENTS

Coors did not identify any future applicable requirements in their application, and the staff is unaware of any requirements that the facility could become subject to during the life of the Title V permit. Therefore, no future applicable requirements have been included in the permit.

INAPPLICABLE REQUIREMENTS

40 CFR 60 Subpart Dc is listed as an inapplicable requirement in the Title V permit for Units 1, 2 and 3. The regulation applies to steam generating units for which construction commenced after June 9, 1989, and have a maximum design heat input capacity of 100 mmBtu/hr or less, but greater than 10 mmBTU/hr. Construction on the three 18 mmBTU/hr boilers (Units 1,2 and 3) began in November of 1985. Therefore, 40 CFR 60 Subpart Dc does not apply to the three 18 mmBTU/hr boilers (Units, 1, 2 and 3).

40 CFR 60 Subpart DD is listed as an inapplicable requirement in the Title V permit. The regulation applies to each affected facility at any grain terminal elevator or any grain storage elevator that commenced construction, modification, or reconstruction after August 3, 1978.

Grain terminal elevators located at breweries are exempt from 40 CFR 60 Subpart DD.

40 CFR 60 Subpart VV § 60.482 (Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry) is listed as an inapplicable requirement in the Title V permit. The regulation applies to each affected facility in the synthetic organic chemicals manufacturing industry. Facilities that produce beverage alcohol are exempt from § 60.482.

40 CFR 60 Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Storage Vessels) is listed as an inapplicable requirement in the Title V permit. This regulation applies to each storage vessels with a capacity greater than 75 m³ that is used to store volatile organic liquids for which construction, reconstruction, or modification is commenced after July 23, 1984. This regulation does not apply to vessels used to store beverage alcohol.

40 CFR 60 Subpart NNN (Standards of Performance for VOC Emissions from Synthetic Organic Chemical Manufacturing Industry Distillation Operations)) is listed as an inapplicable requirement in the Title V permit. This regulation applies to each affected facility that is part of a process unit that produces any of the chemicals listed in § 60.667 as a product, co-product, by-product, or intermediate. This regulation does not apply to any distillation unit operating as part of process unit which produces beverage alcohols.

40 CFR 60 Subpart WW (Standards of Performance for the Beverage Can Surface Coating Industry) is listed as an inapplicable requirement in the Title V permit. This regulation applies to the following affected facilities in beverage can surface coating lines: each exterior base coat operation, each overvarnish coating operation, and each inside spray coating operation. This regulation does not apply to Coors brewing Company - Shenandoah Brewery.

COMPLIANCE PLAN

Coors is currently in compliance with all applicable requirements. No compliance plan was included in the application or in the permit.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Table III. Insignificant Emission Units.

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
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Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
19	Diesel Fuel Storage	9 VAC 5-80-720 A	-	-
31	Rail and Truck Loading	9 VAC 5-80-720 A	-	-
35	Bottlewash	9 VAC 5-80-720 B	PM VOC glycol ethers	-
50	CO ₂ Purification	9 VAC 5-80-720 B	VOC acetaldehyde	-
51	Yeast Propagation	9 VAC 5-80-720 B	VOC SO ₂	-
52	Cooling Towers	9 VAC 5-80-720 A	-	-
53	Deozonation Towers	9 VAC 5-80-720 B	VOC (ozone)	-
54	Packaging Traymaker	9 VAC 5-80-720 B	PM PM-10 VOC	-
55	CIP (clean-in-place) System	9 VAC 5-80-720 B	VOC	-
56	Hops Staging Room	9 VAC 5-80-720 B	VOC	-
57	Inline Defill Units	9 VAC 5-80-720 B	VOC	-
58	Warehouse Keg Defill	9 VAC 5-80-720 B	VOC	-
59	Keg line Defill	9 VAC 5-80-720 B	VOC	-
60	Keg Can Filling	9 VAC 5-80-720 B	VOC	-
-	General Ventilation	9 VAC 5-80-720 A	-	-
-	Portable Heaters	9 VAC 5-80-720 A	-	-
-	Space Heaters	9 VAC 5-80-720 A	-	-
-	Office Activities	9 VAC 5-80-720 A	-	-
-	Janitorial Cleaning/Maintenance	9 VAC 5-80-720 A	-	-
-	Architectural Repair Activities	9 VAC 5-80-720 A	-	-
-	Grounds Maintenance	9 VAC 5-80-720 A	-	-
-	Locker Room Ventilation	9 VAC 5-80-720 A	-	-
-	Copier Activities	9 VAC 5-80-720 A	-	-
-	Blueprint Duplication	9 VAC 5-80-720 A	-	-

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
-	Cafeteria Activities	9 VAC 5-80-720 A	-	-
-	Safety Devices	9 VAC 5-80-720 A	-	-
-	Air Contaminate Test Equipment	9 VAC 5-80-720 A	-	-
-	Welding, Soldering Equipment	9 VAC 5-80-720 A	-	-
-	Forklift, Truck Engines	9 VAC 5-80-720 A	-	-
-	Firefighting Equipment and Training	9 VAC 5-80-720 A	-	-
-	Quality Control Lab Activities	9 VAC 5-80-720 A	-	-
-	Air Compressors	9 VAC 5-80-720 A	-	-
-	Dumpster	9 VAC 5-80-720 A	-	-
-	Air Dryers for Instrument Air	9 VAC 5-80-720 A	-	-
-	Laboratory Activities	9 VAC 5-80-720 A	-	-
-	Sampling Activities	9 VAC 5-80-720 A	-	-
-	Solvent Storage	9 VAC 5-80-720 A	-	-
-	Cooling Ponds	9 VAC 5-80-720 A	-	-
-	Maintenance Activities	9 VAC 5-80-720 A	-	-
-	Spill Collection Tanks	9 VAC 5-80-720 A	-	-
-	Steam Vents	9 VAC 5-80-720 A	-	-
-	Boiler Treatment Operations	9 VAC 5-80-720 A	-	-
-	Nonhazardous Boiler Cleaning Activities	9 VAC 5-80-720 A	-	-
-	Portable Containers	9 VAC 5-80-720 A	-	-
-	Vents or Stacks for Sewer Lines	9 VAC 5-80-720 A	-	-
-	Purging of Natural Gas Lines	9 VAC 5-80-720 A	-	-
-	Sealed Batteries	9 VAC 5-80-720 A	-	-

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
-	Parking Lot Resurfacing	9 VAC 5-80-720 A	-	-
-	Decarbonators Vents	9 VAC 5-80-720 A	-	-
-	Relief Valves (excluding air pollution bypass valves)	9 VAC 5-80-720 A	-	-

¹The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B - Insignificant due to emission levels

9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

Coors did not submit a request for confidentiality. Therefore, all portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

A public notice regarding the draft permit was placed in the Daily News Record, Harrisonburg, Virginia, on April 8, 2005. EPA was sent a copy of the draft permit and notified of the public notice on April 8, 2005. West Virginia, the only affected state, was sent a copy of the public notice in e-mail dated April 8, 2005. All persons on the Title V mailing list were also sent a copy of the public notice in e-mail dated April 8, 2005.

Public comments were accepted from April 8, 2005 to May 8, 2005. No comments were received from the public, the affected state and the EPA regarding the draft permit.

Attachment A

2003 Annual Emission Update

DEQ-VALLEY

APR 07 2004



DEQ

TO: _____
FILE: _____

VIRGINIA DEPARTMENT OF
ENVIRONMENTAL QUALITY

EMISSION STATEMENT CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(see reverse side for instructions)

SIGNATURE: _____

DATE: _____

PRINTED NAME: _____

TITLE: _____

COMPANY: _____

REGISTRATION NUMBER: _____

TELEPHONE NUMBER: _____

[Handwritten Signature]

April 2, 2004

Robert F. Machado

Vice President / Plant Manager

Cooks Brewing Company - Shenandoah Brewery

81012

(540) 289-8500

2003 EMISSION STATEMENT

FACILITY NAME:	PLANT ID & REGISTRATION #	CONTACT PERSON
Coors Brewing Company Shenandoah Brewery	81012	Jeff Rinker
LOCATION		JURISDICTION
3.5 miles S. of Elkton on US340 in Rockingham County		Valley Regional Office
MAILING ADDRESS	MAILING CITY AND STATE	ZIP CODE
P.O. Box 25	Elkton, VA	22827
PARENT COMPANY	TELEPHONE NUMBER	PRIMARY SIC CODE
Coors Brewing Company	(540) 289-8112	2082

FACILITY TOTALS (Sum annual emissions for all emission points/segments from attached pages)

	ANNUAL (tons/yr)	OZONE SEASON (lbs/day)
Total VOC emissions for 2003	89.45	490.12
Total NO _x emissions for 2003	11.40	62.47
Total SO ₂ emissions for 2003	0.87	
Total PM ₁₀ emissions for 2003	1.03	
Total Pb emissions for 2003	0.00	
Total TRS emissions for 2003	0.01	
Total TNMOC emissssions for 2003 (landfills only)	NA	
Total non-VOC/non-PM HAP emissions for 2003	0.00	
Total CO emissions for 2003	12.56	
Total PM2.5 emissions for 2003	1.03	
Total NH3 emissssions for 2003	0.12	

Actual Emissions for Calendar Year 2003
Boilers 1, 2, and 3 (Emission Units 1, 2, and 3)

Pollutant	Fuel	Throughput	EF*	Actual Annual Emissions
PM10	Nat.Gas	12.20 MMcf	7.6 lbs/MMcf	0.046 tons
PM10	Propane	19 1000gal	0.6 lbs/1000gal	0.006 tons
				<u>0.052</u> total tons per year
PM2.5	Nat.Gas	12.20 MMcf	7.6 lbs/MMcf	0.046 tons
PM2.5	Propane	19 1000gal	0.6 lbs/1000gal	0.006 tons
				<u>0.052</u> total tons per year
SO2	Nat.Gas**	12.20 MMcf	0.6 lbs/MMcf	0.0037 tons
SO2	Propane***	19 1000gal	0.02 lbs/1000gal	0.0002 tons
				<u>0.0039</u> total tons per year
NOx	Nat.Gas	12.20 MMcf	100 lbs/MMcf	0.610 tons
NOx	Propane	19 1000gal	19 lbs/1000gal	0.181 tons
				<u>0.791</u> total tons per year
CO	Nat.Gas	12.20 MMcf	84 lbs/MMcf	0.512 tons
CO	Propane	19 1000gal	3.2 lbs/1000gal	0.030 tons
				<u>0.543</u> total tons per year
VOCs	Nat.Gas	12.20 MMcf	5.5 lbs/MMcf	0.034 tons
VOCs	Propane	19 1000gal	0.5 lbs/1000gal	0.005 tons
				<u>0.038</u> total tons per year
Formaldehyde	Nat.Gas	12.20 MMcf	0.075 lbs/MMcf	0.0005 tons
Formaldehyde	Propane	19 1000gal	n/a	n/a
				<u>0.0005</u> total tons per year
Ammonia	Nat.Gas	12.20 MMcf	0.49 lbs/MMcf	0.003 tons
Ammonia	Propane	19 1000gal		n/a
				<u>0.003</u> total tons per year

note: * the source of all Emission Factors is the EPA's AP-42, 5th ed.(7/1998).

** the emission factor of 0.6 assumes an average sulfur concentration in Nat. Gas of 2000 grains/MMcf.

*** the emission factor of 0.02 assumes that propane contains the same concentration of sulfur as natural gas quoted in AP-42 (0.2 grains/100cf).

(1) Muriatic Acid (with 29% w HCl) is used in the Utilities Center for regeneration of deionizing units. The process is a closed system, thus no emissions. In addition, due to the solubility of HCl in water it is believed that all HCl is spent in the system and no emissions of HCl occur.

**Actual Emissions for Calendar Year 2003
Boilers 4, 5, and 6 (Emission Units 4, 5, and 6)**

Pollutant	Fuel	Throughput	EF*	Actual Annual Emissions
PM10	Nat.Gas	216.99 MMcf	7.6 lbs/MMcf	0.825 tons
PM10	Propane	0.00 1000gal	0.6 lbs/1000gal	0.000 tons
				0.825 total tons per year
PM2.5	Nat.Gas	216.99 MMcf	7.6 lbs/MMcf	0.825 tons
PM2.5	Propane	0.00 1000gal	0.6 lbs/1000gal	0.000 tons
				0.825 total tons per year
SO2	Nat.Gas**	216.99 MMcf	0.6 lbs/MMcf	0.0651 tons
SO2	Propane***	0.00 1000gal	0.02 lbs/1000gal	0.0000 tons
				0.0651 total tons per year
NOx	Nat.Gas	216.99 MMcf	CEM Data	8.396 total tons per year
NOx	Propane	0.00 1000gal		
CO	Nat.Gas	216.99 MMcf	84 lbs/MMcf	9.114 tons
CO	Propane	0.00 1000gal	3.2 lbs/1000gal	0.000 tons
				9.114 total tons per year
VOCs	Nat.Gas	216.99 MMcf	5.5 lbs/MMcf	0.597 tons
VOCs	Propane	0.00 1000gal	0.5 lbs/1000gal	0.000 tons
				0.597 total tons per year
Formaldehyde	Nat.Gas	216.99 MMcf	0.075 lbs/MMcf	0.008 tons
Formaldehyde	Propane	0.00 1000gal	n/a	n/a
				0.008 total tons per year
Ammonia	Nat.Gas	216.99 MMcf	0.49 lbs/MMcf	0.053 tons
Ammonia	Propane	0.00 1000gal		n/a
				0.053 total tons per year

note: * the source of all Emission Factors is the EPA's AP-42, 5th ed. (7/1998).

** the emission factor of 0.6 assumes an average sulfur concentration in Nat. Gas of 2000 grains/MMcf.

*** the emission factor of 0.02 assumes that propane contains the same concentration of sulfur as natural gas quoted in AP-42 (0.2 grains/100cf).

(1) Muriatic Acid (with 29% w HCl) is used in the Utilities Center for regeneration of deionizing units. The process is a closed system, thus no emissions.

In addition, due to the solubility of HCl in water it is believed that all HCl is spent in the system and no emissions of HCl occur.

**Actual Emissions for Calendar Year 2003
Waste Beer Tanks (Emission Unit 26)**

WASTE BEER HANDLING

43,500 GAL TANK #1 STANDING LOSSES
43,500 GAL TANK #1 WORKING LOSSES
14,500 GAL TANK #1 STANDING LOSSES
14,500 GAL TANK #1 WORKING LOSSES
14,500 GAL TANK #2 STANDING LOSSES
14,500 GAL TANK #2 WORKING LOSSES

SCC	Pollutant	Throughput (gal/yr)	ER (lb/yr)	EF (lb/1000-bbl)	Actual Emissions	
					tpm	tpy
3-02-009-65	VOC	997,700	68.86	TANKS	0.003	0.034
3-02-009-65	VOC	997,700	205.54	TANKS	0.009	0.103
3-02-009-65	VOC	0	0.00	TANKS	0.000	0.000
3-02-009-65	VOC	0	0.00	TANKS	0.000	0.000
3-02-009-65	VOC	0	0.00	TANKS	0.000	0.000
3-02-009-65	VOC	0	0.00	TANKS	0.000	0.000

*Note 1

Allowable Emissions	
tpm	tpy RAV
TOTAL VOC	0.011 0.137
	0.22 1.00

Note 1: Allowable Emissions means controlled emissions per Title V permit condition IV.A.17.

Actual Emissions for Calendar Year 2003
Carton Assembly & Bottle Label Application (Emission Unit 30)

	*Note 1	*Note 2	*Note 3			
	Throughput (gal glue/yr)	VOC Content (lb VOC/gal glue)	Actual Emissions		Allowable Emissions	
			tpm	tpy	tpm	tpy RAV
CARTON ASSEMBLY (HOT MELT)	37,004	0.01	0.01	0.15	0.22	1.00
BOTTLE LABEL APPLICATION	75,951	0.03	0.11	1.33	2.86	13.00

Note 1: Chemical usage from 2003 chemical inventory; throughput (gal) =throughput (lbs) / density (lb/gal)

Note 2: VOC content for Hot melt is reported as zero by the manufacturer, however, 0.1% by weight is used as a conservative calculation. VOC content for bottle label application WB-5000 and WB-5020 is 11 g VOC/liter of material less water and exempt solvent per MSDS, for Aabbitt 712-150 VOC content is 0.22 wt%. See calculations below.

Note 3: Allowable Emissions means controlled emissions per Title V permit condition V.A.8.

Carton Assembly	Throughput (lbs)	Density (lbs/gallon)	Throughput (gallons)	VOC content (% wt.)	VOC (lbs)	VOC content (lbs VOC/gal)
HL-9250	0	7.7	0.00	0.1	0.00	
HL-9256	285,696	7.99	35,756.70	0.1	285.70	
HM 1875	0	8.5	0.00	0.1	0.00	
Instant Lok 34-2734	0	8.1	0.00	0.1	0.00	
Instant Lok 34-2571	10,100	8.1	1,246.91	0.1	10.10	
<i>Total</i>			37,003.61		295.80	0.01

Label Adhesive	Throughput (lbs)	Density (lbs/gallon)	Throughput (gallons)	VOC content (lbs VOC/gal)	VOC (lbs)	VOC content (lbs VOC/gal)
Label Adhesive Usage - WB-5000 (lbs/yr)	112,500	9.2	12,228.26	0.092	1,122.41	
Label Adhesive Usage - WB-5020 (lbs/yr)	27,500	9.5	2,894.74	0.092	265.70	
Label Adhesive Usage - Aabbitt 712-150 (lbs/yr)	574,827	9.45	60,828.25	0.021	1,264.62	
<i>Total</i>			75,951.25		2,652.73	0.03

**Actual Emissions for Calendar Year 2003
Blending & Finishing (Emission Unit 25)**

	*Note 1		*Note 2		Actual Emissions	
	Pollutant	Throughput (lbs CO ₂ /yr)	EF (lb/1000-lbs CO ₂)		tpm	tpy
CONDITIONING TANKS, FILL-ON-VENT	VOC	2,203,371	0.174		0.02	0.19

	*Note 3		*Note 4		Actual Emissions	
	Pollutant	Throughput (bbl evac/yr)	EF (lb/1000-bbl evac)		tpm	tpy
CONDITIONING TANKS, EVACUATION	VOC	640,320	1.05		0.03	0.34

					*Note 5	
					Allowable Emissions	
					tpm	tpy RAV
TOTAL VOC					0.04	0.53
					0.66	3.00

Note 1: Fill-on-vent throughput from CO₂ usage

Note 2: Fill-on-vent EF from 8/20/96 "Monitoring Study of Ethanol Release from Beer Transfer Operations at the Coors Shenandoah Brewery"

Note 3: Evacuation capacity from 3/23/94 "Emission Measurement and Control Plan [EMCP] for VOC Sources Coors Shenandoah Brewery"

Note 4: Evacuation EF from 7/9/97 AF calcs

Note 5: Allowable Emissions means controlled emissions per Title V permit condition IV.A.17.

**Actual Emissions for Calendar Year 2003
Waste Beer Defill (Emission Unit 32)**

		*Note 1	*Note 2					
SCC	Pollutant	Throughput (lb matl/yr)	EF (lb VOC/lb matl)	Actual Emissions				
				tpm	tpy			
Bottle crusher	3-02-009-61	VOC	1,563,470	0.001	0.06	0.75		
Can crusher w/ pneumatic conveyor & cyclone	3-02-009-61	VOC	138,082	0.035	0.20	2.45		
							*Note 3	
							Allowable Emissions	
							tpm	tpy RAV
TOTAL VOC					0.27	3.20	2.50	16.00

Note 1: Throughput from 2003 recycled inventory

Note 2: EFs from 7/1/97 AF calculations. See calculations below.

Note 3: Allowable Emissions means controlled emissions per Title V permit condition V.A.8.

Emission Factors:

	VOC, lb/gal	Throughput, gal/yr	Emission Factor
Bottle Crusher:	1.4	1.5	2200
Can Crusher:	3.194	1.5	135

Note 1: MRI submittal used one EF for the entire defill unit; EF units in lb/hr operated

Note 2: AP-42, 5th ed., Section 9.12.1 "bottle crusher" EF from Coors Golden stack test 4/21/93; units in lb VOC/batch glass crushed

Note 3: AP-42, 5th ed., Section 9.12.1 "can crusher with pneumatic conveyor" EF from Coors Golden stack test 10/21/93; units in lb VOC/gal beer recovered

**Actual Emissions for Calendar Year 2003
Packaging Lines (Emission Unit 27)**

***Notes 1-4**

FILLING LINES (ALL)
STERILIZED BOTTLE FILLING LINE
STERILIZED CAN FILLING LINE
KEG FILLING LINE

SCC	Pollutant	Throughput (bbl/yr)	EF (lb/1000-bbl)	Actual Emissions	
				tpm	tpy
3-02-009-52,54,55	Acetaldehyde	5,464,359	0.0685	0.02	0.19
3-02-009-54	VOC	1,682,990	36	2.52	30.29
3-02-009-52	VOC	2,591,377	37.5	4.05	48.59
3-02-009-55	VOC	1,189,992	0.675	0.03	0.40

***Note 5**

	Allowable Emissions	
	tpm	tpy RAV
TOTAL VOC	6.61	79.28
	24.40	110.80

Note 1: MRI EF for sterile bottle filling line is an average factor based on 3 Coors Golden stack tests on 6/25/92, 10/14/92, and 12/2/92.

0.033 lb VOC/bbl derived from 10/14/92 test (APT report 10/92; ST file 5.2)

0.038 lb VOC/bbl (#3 bottle filler) from 12/2/92 test (APT report 12/92; ST file 5.3)

Thus the APT average factor is 0.035 lb VOC/bbl (true avg = 0.0355).

0.039 lb VOC/bbl derived from 6/25/92 test (CAE report 11/25/92, #6256-1, ST file 5.4)

The MRI factor is the average of 0.035 and 0.039 = 0.037.

True average factor of all 3 tests is 36.7 lb VOC/1000-bbl.

Note 1: MRI EF for sterile can filling line is an average factor based on 5 Coors Golden stack tests on 6/23/92, 10/14/92, 12/2/92, 12/4/92, and 12/16/92.

0.042 lb VOC/bbl (#9 can filler) from 12/4/92 test (APT report 12/92; ST file 5.1)

0.029 lb VOC/bbl from 10/14/92 test (APT report 10/92; ST file 5.2)

0.036 lb VOC/bbl (#5 can filler) from 12/2/92 test (APT report 12/92; ST file 5.3)

0.037 lb VOC/bbl (#6 can filler) from 12/16/92 test (APT report 12/92; ST file 5.3)

Thus the APT average factor is 0.036 lb VOC/bbl (true avg = 0.0360).

0.040 lb VOC/bbl derived from 6/23/92 test (CAE report 11/25/92, #6256-1; ST file 5.4)

The MRI factor is the average of 0.036 and 0.040 = 0.038. This 0.038 value is from taking the average of an average.

True average factor of all 5 tests is 36.8 lb VOC/1000-bbl.

Note 3: EFs were compared to AP-42, 5th ed., Section 9.12.1. The AP-42 EFs for sterile bottle filling line and sterile can filling line are averages from Coors data only.

AP-42 averages are higher than those submitted to MRI, because another APT stack test (APT report 4/3-4/95) was included in the averages.

Note 4: EF for keg filling line from Coors Golden stack test 6/25/92 (CAE report 11/25/92; #6256-1; ST file 5.4)

Note 5: Allowable Emission means controlled emissions per Title V permit condition V.A.8.

Actual Emissions for Calendar Year 2003
Lime Handling (Emission Unit 16)

		*Note 1	*Notes 2, 3 & 4	*Note 5, 6						
SCC	Pollutant	Throughput (tons lime/yr)	EF (lb/ton lime)	Controlled Actual Emissions						
				gr/cuft	lb/hr	tpy				
LIME UNLOADING	3-05-016-12	PM/PM10	0	1.5	0.0000	0.00	0.00			
LIME STORAGE	3-05-016-13	PM/PM10	0	ND	0.0000	0.00	0.00			
LIME HANDLING	3-05-016-15	PM/PM10	0	2.2	0.0000	0.00	0.00			
							*Note 7			
							Allowable Emissions			
							gr/dscf	lb/hr	tpy	
TOTAL PM/PM10					0.0000	0.00	0.00	0.01	1.00	1.00

Note 1: Throughput from 2003 usage of lime through the silo

Note 2: Both EFs from AP-42, 5th ed., Section 11.17, Table 11.17-4; all EFs are in units of lb PM/ton material processed

Note 3: Unloading EF is actually EF for product loading, open truck

Note 4: Handling EF is actually EF for product transfer and conveying

Note 5: Controlled by fabric filter, 99.5% control efficiency.

Note 6: For all processes, the stack flow rate must be 11,667 acfm to meet the gr/dscf allowable limits.

Note 7: Allowable Emissions means controlled emissions per Title V permit condition IV.A.8.

**Actual Emissions for Calendar Year 2003
Conveyor Lubrication (Emission Unit 28)**

CONVEYOR LUBRICATION	*Note 1		*Note 2		*Note 3		
	Pollutant	Throughput (gal/yr)	EF (lb/gal)	Actual Emissions		Allowable Emissions	
				tpm	tpy	tpm	tpy RAV
	VOC	25,132.00	0.000	0.00	0.00	1.10	5.00

Note 1: Throughput based on chemical inventory of lubricants purchased

Note 2: EF = Sum of volatiles (lbs)/ Sum of usage (gallons); (using various lubricants at different usage rates). See calculations below.

Note 3: Allowable Emissions means controlled emissions per Title V permit condition V.A.8.

	Usage (gallons)	Density (lbs/gal)	% Volatiles	VOC (lbs)
Lubri-Klenz S	15,785	8.60	0	0
Sani Glide	9,347	8.99	0	0
Vektor 100	0	8.45	3	0
<i>Total</i>	<i>25,132</i>			<i>0</i>
			<i>E.F.=</i>	<i>0.000</i>

Actual Emissions for Calendar Year 2003
Product Marking (Emission Unit 29)

Pollutant	*Note 1	*Note 2	*Note 3	
	Throughput	EF	Actual Emissions	
	(gal/yr)	(lb/gal)	tpm	tpy
VOC	861.75	6.05	0.22	2.61
			tpm RAV	tpy RAV
			1.88	8.55

Note 1: Throughput from purchasing records for 2003.

Note 2: Due to the fact that several products were used during the year, the emission factor for actual emissions is as follows:

EF= Sum of actual volatiles (lbs)/Sum of actual usage (gallons); assuming all volatiles are organic. See calculations below.

Note 3: Allowable Emissions means controlled emissions per Title V permit condition V.A.8.

	Throughput (gallons)	Density (lbs/gallon)	Throughput (lbs)	VOC content	VOC (lbs)	VOC content (lbs/gal)
Videojet Ink - 16-2500Q (gal/yr)	45.00	8.15	366.65	68.1%	249.69	
Videojet Ink - 16-2505 (gal/yr)	162.00	6.65	1,077.49	99.0%	1,066.72	
Videojet Ink - 16-3400Q (gal/yr)	2.25	6.65	14.97	76.0%	11.37	
Videojet Ink - 16-7120Q (gal/yr)	0.00	7.23	0.00	76.0%	0.00	
Videojet Ink - 16-7125Q (gal/yr)	0.00	6.65	0.00	100.0%	0.00	
Videojet Ink - 16-8200 (gal/yr)	51.75	7.40	382.92	74.0%	283.36	
Videojet Ink - 16-8205 (gal/yr)	294.75	7.40	2,180.99	74.0%	1,613.93	
Videojet Ink - 16-8640 (gal/yr)	72.00	7.40	532.76	80.0%	426.21	
Videojet Ink - 16-8645 (gal/yr)	234.00	6.73	1,575.84	99.0%	1,560.08	
<i>Total</i>	861.75				5,211.36	6.05

**Actual Emissions for Calendar Year 2003
Wastewater Treatment Plant (Emission Unit 33)**

	SCC	Pollutant	Throughput	Throughput Units	*Note 1,2, 4-6, 8-10		*Note 3,7	
					EF	EF units	Controlled Actual Emissions	
							tpm	tpy
COLLECTION SYSTEM		VOC	0.70	MGD	3.76	lb/MG	0.05	0.55
PRIMARY TREATMENT SYSTEM		CH4	6,664	MMBtu/yr	4.08	lb/MMBtu	0.02	0.27
		H2S	6,664	MMBtu/yr	0.029	lb/MMBtu	0.000	0.002
BIOGAS FLARE		PM from flare	6,664	MMBtu/yr	0.14	lb/MMBtu	0.039	0.47
		SO2 from flare	6,664	MMBtu/yr	0.05	lb/MMBtu	0.014	0.17
		NOx from flare	6,664	MMBtu/yr	0.068	lb/MMBtu	0.019	0.23
		CO from flare	6,664	MMBtu/yr	0.37	lb/MMBtu	0.103	1.23
BIOGAS BOILER	1-02-006-02	PM from boiler	39.75	MMCF/yr	7.6	lb/MMcf	0.01	0.15
	1-02-006-02	PM10 from boiler	39.75	MMCF/yr	7.6	lb/MMcf	0.01	0.15
	1-02-006-03	PM2.5 from boiler	39.75	MMCF/yr	7.6	lb/MMcf	0.01	0.15
	1-02-006-02	SO2 from boiler	39.75	MMCF/yr	32	lb/MMcf	0.05	0.64
	1-02-006-02	NOx from boiler	39.75	MMCF/yr	100	lb/MMcf	0.17	1.99
	1-02-006-02	CO from boiler	39.75	MMCF/yr	84	lb/MMcf	0.14	1.67
	1-02-006-02	CH4 from boiler	39.75	MMCF/yr	2.3	lb/MMcf	0.004	0.05
	1-02-006-02	NMTOC from boiler	39.75	MMCF/yr	5.5	lb/MMcf	0.009	0.11
	1-02-006-02	H2S from boiler	39.75	MMCF/yr	0.35	lb/MMcf	0.001	0.01
	1-02-006-02	NH3 from boiler	39.75	MMCF/yr	3.2	lb/MMcf	0.005	0.06
SECONDARY TREATMENT SYSTEM		VOC	0.70	MGD	6.42	lb/MG	0.08	0.93
								*Note 11
								Allowable Emissions
								tpm tpy RAV
TOTAL VOC								0.13 1.59 0.88 4.00
TOTAL PM								0.05 0.62
TOTAL PM10								0.01 0.15
TOTAL PM2.5								0.01 0.15
TOTAL SO2								0.07 0.80
TOTAL NOx								0.18 2.21
TOTAL CO								0.24 2.90
TOTAL H2S								0.001 0.009
TOTAL NH3								0.005 0.064

COLLECTION SYSTEM

Note 1: EF from 7/15/97 AF calcs

PRIMARY TREATMENT SYSTEM

Note 2: EFs from 5/27/97 AF calcs

Note 3: Control efficiency for flare is 98% per AP-42, 5th ed., Section 13.5

BIOGAS FLARE

Note 4: PM, NOx, CO EFs from AP-42, 5th ed., Section 13.5; units in lb/MMBtu; AP-42 EFs based on tests using waste gas containing 80% propene and 20% propane; biogas contains 60% CH4, 40% CO2, and < 1% H2S per 4/14/95 revised interim permit application

Note 5: PM10 (soot) EF taken to be zero, since, according to AP-42, "waste gases containing methane, hydrogen, CO, and ammonia usually burn without smoke."

Note 6: SO2 EF from 5/27/97 AF calcs

Note 7: Emissions from the propane pilot flame were not calculated since pilot flame combustion emissions are negligible compared to biogas combustion emissions.

BIOGAS BOILER

Note 8: EFs from AP-42, 5th ed., Section 1.4

Note 9: CH4 EF is 52% of TOC EF per AP-42; boiler NMTOC EF is 48% of TOC EF per AP-42

SECONDARY TREATMENT SYSTEM

Note 10: EF from 7/21/97 AK calcs

Note 11: Allowable Emissions means controlled emissions per Title V permit condition VI.A.4.

Note 12: The effluent is chlorinated, however, due to the solubility of chlorine and the fact that there is no obvious chlorine odor, it is believed that all chlorine is consumed and therefore, no emissions occur.

Attachment B

Minor NSR Permit
dated 08/21/2002



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

STATIONARY SOURCE PERMIT TO CONSTRUCT AND OPERATE

**This permit includes designated equipment subject to
New Source Performance Standards (NSPS).**

This permit supersedes your permit dated August 14, 2000.

In compliance with the Federal Clean Air Act and the Commonwealth of Virginia
Regulations for the Control and Abatement of Air Pollution,

Coors Brewing Company - Shenandoah Brewery
PO Box 25
Elkton, VA 22827
Registration No.: 81012
NET ID No.: 51-165-0122

is authorized to construct and operate

a brewery and an existing package facility
(the Shenandoah brewery)

located at

3.5 miles south of Elkton on U.S. 340
Rockingham County, Virginia

in accordance with the Conditions of this permit.

Approved on:

August 21, 2002

James M. Sainor
for Director, Department of Environmental Quality

Permit consists of 20 pages.
Permit Conditions 1 to 66.
Source Testing Report Format.

PERMIT CONDITIONS - the regulatory reference or authority for each condition is listed in parentheses () after each condition.

APPLICATION

1. Except as specified in this permit, the permitted facility is to be modified and operated as represented in the permit applications dated May 25, 1993; March 21 and April 17, 1995; and July 10, 2002, including amendment information dated April 8, April 12, May 28, June 3, June 4, June 11, June 21, July 12, July 28, August 6, August 30, 1993; May 24, June 8, June 19, July 10, and July 11, 1995; February 5, 1997; June 27 and June 30, 2000; and, July 11, 2002. Any changes in the permit application specifications or any existing facilities which alter the impact of the facility on air quality may require a permit. Failure to obtain such a permit prior to construction may result in enforcement action. (9 VAC 5-50-390 and 9 VAC 5-80-10 K 4)

PROCESS REQUIREMENTS

2. Equipment List –

Equipment to be constructed and operated at this facility consists of:

- a ten million barrel per year brewhouse; and
- two natural gas-fired boilers (Units 5 and 6) rated at 97 mmBTU/hr each (NSPS)

Equipment to be included in the ten million barrel per year brewhouse consist of:

- grain handling system (Unit 10);
- brewing process (Unit 20);
- filter media dryer;
- extract/grain separation process (Unit 21);
- wort processing (Unit 22);
- fermenting (Unit 23);
- aging process (Unit 24);
- pelletizing process (Unit 13); and
- diatomaceous earth handling (Unit 15);

Previously permitted equipment at this facility prior to the date of this permit consists of:

- one natural gas-fired Nebraska boiler (Unit 4) rated at 97 mmBTU/hr (NSPS);

- beer conditioning process (Unit 25);
- by-products handling system (Unit 26);
- lime handling (Unit 16);
- packaging fillers process (Unit 27);
- packaging conveyor lubrication (Unit 28);
- product marking (Unit 29);
- carton assembly and label application (Unit 30);
- packaging defill process (Unit 32);
- a wastewater treatment facility equipped with a primary anaerobic wastewater treatment unit (designed for an average COD loading less than or equal to 60 lb/1,000 ft³-day) (Unit 33); and
- one biogas flare rated at 11.9 mmBTU/hr

Other existing equipment not previously subject to permitting:

- three natural gas-fired Cleaver brooks boilers (Units 1, 2 and 3) rated at 18 mmBTU/hr each

Exempt equipment installed at this facility:

- one biogas boiler rated at 3.954 mmBTU/hr

(9 VAC 5-80-10 A)

3. **Emission Controls** – Nitrogen oxide emissions from the three (3) 97 mmBTU/hr boilers (Units 4, 5 and 6) shall be controlled by low NOx burners and flue gas recirculation or Department of Environmental Quality approved equivalent methods.
(9 VAC 5-50-260)
4. **Emission Controls** – Particulate emissions (TSP and PM-10) from the operation of the following equipment shall be controlled by fabric filters:
 - starch unloading pneumatic system (Unit 10);
 - starch brewhouse storage system (Unit 10);
 - starch brewhouse distribution system (Unit 10);
 - barley malt and rice receiving system (Unit 10);

- barley malt storage, screening, and milling system (Unit 10);
- rice storage, screening, and milling system (Unit 10);
- pellet bulk storage (Unit 13);
- diatomaceous earth handling system (Unit 15); and,
- lime storage and handling system (Unit 16).

(9 VAC 5-50-260)

5. **Emission Controls** – Particulate emissions (TSP and PM-10) from the operation of the filter media dryer shall be controlled by a wet scrubber. The wet scrubber shall be provided with adequate access for inspection.
(9 VAC 5-50-260)

6. **Emission Controls** - Volatile organic compound emissions from the extract/grain separation operation (Unit 21) shall be controlled not to exceed the limit specified in Condition 43. The processing and any control equipment for this operation shall be installed in an accessible location and shall be maintained by the permittee such that it is in proper working order at all times.
(9 VAC 5-80-10 H and 9 VAC 5-50-260)

7. **Emission Controls** - An overhead vapor compression/heat recovery system shall be an integral part of the brewing operation (Unit 20). Emissions from this integral brewing process shall not exceed the limits specified in Condition 43 of this permit. The overhead vapor compression/heat recovery system shall be installed in an accessible location and shall be maintained by the permittee such that it is in proper working order at all times. The recovered heat and liquid shall be returned to the brewing process.
(9 VAC 5-80-10 H and 9 VAC 5-50-260)

8. **Emission Controls** - Volatile organic compound emissions from conditioning (Unit 25) shall be controlled by maintaining closed vessels under CO₂ gas pressure during storage and cleaning activities.
(9 VAC 5-80-10 H and 9 VAC 5-50-260)

9. **Emission Controls** - Volatile organic compound emissions from the packaging operation (Unit 27) shall be controlled by beer dispensing technology and beer spillage management practices. The packaging operation shall be maintained by the permittee such that it is in proper working order at all times.
(9 VAC 5-80-10 H and 9 VAC 5-50-260)

10. **Emission Controls** – Volatile Organic Compounds emissions from the defill operation (Unit 32) shall be controlled by the use of a water/beer collection system or DEQ approved equivalent methods.
(9 VAC 5-80-10 H and 9 VAC 5-50-260)

11. **Emission Controls** – Volatile Organic Compounds emissions from conveyor line lubrication (Unit 28) shall be controlled by the use of the current low-VOC content lubricants, lubrication methods, and lubricant spillage management practices. As new low-VOC content lubricants become available, the permittee shall evaluate the feasibility of their use. The conveyor line lubrication system operation shall be maintained by the permittee such that it is in proper working order at all times
(9 VAC 5-80-10 H and 9 VAC 5-50-260)
12. **Emission Controls** – Volatile Organic Compounds emissions from product marking (Unit 29) shall be controlled by the use of the current low-VOC content product marking inks and makeup cleaners. As new inks and makeup cleaners become available, the permittee shall evaluate the feasibility of their use. The product marking operations shall be maintained by the permittee such that it is in proper working order at all times.
(9 VAC 5-80-10 H and 9 VAC 5-50-260)
13. **Emission Controls** – Volatile Organic Compounds emissions from carton assembly and label application (Unit 30) shall be controlled by the use of low-solvent (less than 1% volatile organic compounds by weight for carton assembly and less than 2% volatile organic compounds by weight for bottle label application) based glues.
(9 VAC 5-80-10 H and 9 VAC 5-50-260)
14. **Emission Controls** - The collection system for the wastewater treatment facility and influent structures must be covered to prevent escape of volatile organic compound emissions.
(9 VAC 5-80-10 H and 9 VAC 5-50-260)
15. **Emission Controls** – Final Volatile Organic Compounds emissions from wastewater treatment facility shall be controlled by an advanced wastewater treatment system. The advanced wastewater treatment system must be operating properly for an appropriate period of time in accordance with manufacturer specifications prior to commencing operation of the brewhouse. The advanced wastewater treatment system shall be provided with adequate access for inspection. The facility shall not exceed volatile organic compound emissions limits specified in Condition 48 and shall be equipped with a biogas boiler and a biogas flare for combustion of all biogas.
(9 VAC 5-50-260)
16. **Monitoring Devices** - The fuel gas flow of the three (3) 18 mmBTU/hr boilers (Units 1, 2 and 3) shall be continuously measured and recorded by Equimeter Mark II Turbo-Meters fitted with Electrocorrector-P&T or a DEQ approved equivalent method.
(9 VAC 5-80-10 H, 9 VAC 5-50-20 C and 9 VAC 5-50-260)
17. **Monitoring Devices** - The fuel gas flow of the three (3) 97 mmBTU/hr boilers (Units 4, 5 and 6) shall be continuously measured and recorded by Equimeter Mark II Turbo-Meters fitted with Electrocorrector-P&T or a DEQ approved equivalent method.
(9 VAC 5-80-10 H, 9 VAC 5-50-20 C and 9 VAC 5-50-260)

18. **Monitoring Devices** - The biogas boiler and biogas flare shall be equipped with a device to ensure continuous operation of the biogas boiler and/or the biogas flare. The biogas flare shall be equipped with an automatic shutoff device and re-ignition controls. A log shall be maintained to record any periods when the biogas boiler and/or biogas flare are non-operational.
(9 VAC 5-80-10 H, 9 VAC 5-50-20 C and 9 VAC 5-50-260)
19. **Monitoring Devices** - Each fabric filter shall be equipped with a device to continuously measure the differential pressure drop across the fabric filter. Each device shall be installed, maintained, calibrated and operated in accordance with approved procedures which shall include, as a minimum, the manufacturer's written requirements or recommendations. Each monitoring device shall be provided with adequate access for inspection and shall be in operation when the fabric filter is operating. A log shall be maintained to record the pressure drop across each filter once a month.
(9 VAC 5-80-10 H, 9 VAC 5-50-20 C and 9 VAC 5-50-260)
20. **Monitoring Devices** - The wet scrubber shall be equipped with a flow meter and a device to continuously measure differential pressure drop across scrubber. A log shall be maintained to record the differential pressure drop at least once every month.
(9 VAC 5-80-10 H, 9 VAC 5-50-20 C and 9 VAC 5-50-260)
21. **Pollution Prevention** - Volatile organic compound emissions from all vents with emissions greater than one (1) ton per year from the following operations shall be subject to review for the technical feasibility and cost-effectiveness of alternative control options:
- fermentation (Unit 23);
 - aging (Unit 24); and
 - yeast and waste beer by-products operations (Unit 26).
- A control plan shall be submitted to the Director, Valley Region, for approval prior to commencement of construction of these operations. The control plan shall include identification of operational parameters that will be monitored and recorded to ensure proper operation of the identified controls. The plan shall also demonstrate that the aggregate efficiency of the control options chosen will be sufficient to ensure that emissions from these operations do not exceed the limits in Condition 43.
(9 VAC 5-80-10 H and 9 VAC 5-50-260)

OPERATING/EMISSION LIMITATIONS: FUEL BURNING EQUIPMENT

22. **Fuel (P2)** - The approved fuels for the six (6) process steam boilers (Units 1, 2, 3, 4, 5 and 6) are natural gas with propane fuel to be used only as a backup during natural gas curtailments and maintenance. A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-10 H)

23. **Fuel Throughput (P2)** - The three (3) 18 mmBTU/hr boilers (Units 1, 2 and 3), combined, shall consume no more than 464 million cubic feet of natural gas per year and 433 thousand gallons of propane per year, calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
 (9 VAC 5-80-10 and 9 VAC 5-50-260)
24. **Fuel Throughput (P2)** - The three (3) 97 mmBTU/hr boilers (Units 4, 5 and 6), combined, shall consume no more than 1,666 million cubic feet of natural gas per year and 1556 thousand gallons of propane per year, calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
 (9 VAC 5-80-10 H and 9 VAC 5-50-260)
25. **Boiler Operation (P2)** – At no time shall the permittee fire all three (3) of the 97 mmBTU/hr boilers (Units 4, 5 and 6) simultaneously.
 (9 VAC 5-170-160)
26. **Operating and Training Procedures** - Boiler emissions shall be controlled by proper operation and maintenance. Boiler operators shall be trained in the proper operation of all such equipment. Training shall consist of a review and familiarization of the manufacturer's operating instructions, at minimum. The permittee shall maintain records of the required training including a statement of time, place and nature of training provided. The permittee shall have available good written operating procedures and a maintenance schedule for the boilers. These procedures shall be based on the manufacturer's recommendations, at minimum. All records required by this condition shall be kept on site and made available for inspection by the DEQ.
 (9 VAC 5-170-160)
27. **Emission Limits (P2)** - Emissions from the operation of each of the 18 mmBTU/hr boilers (Units 1, 2 and 3) shall not exceed the limits specified below:

Pollutant	Fuel Type	lbs/mmBTU (per boiler)	lbs/hr (per boiler)
Total Suspended Particulate	Propane Gas	0.007	0.12
	Natural Gas	0.006	0.11
PM-10	Propane Gas	0.007	0.12
	Natural Gas	0.006	0.11
Nitrogen Oxides (as NO ₂)	Propane Gas	0.209	3.76
	Natural Gas	0.137	2.47
Carbon Monoxide	Propane Gas	0.035	0.63
	Natural Gas	0.034	0.62
Volatile Organic Compounds	Propane Gas	0.005	0.10
	Natural Gas	0.003	0.05

Formaldehyde	Natural Gas	0.000466	0.008
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(9 VAC 5-50-260)

28. **Emission Limits (P2)** – Total emissions from the operation of the 18 mmBTU/hr boilers (Units 1, 2 and 3), combined, shall not exceed the limits specified below:

Total Suspended Particulate	1.5 tons/yr
PM-10	1.5 tons/yr
Nitrogen Oxides (as NO ₂)	33.9 tons/yr
Carbon Monoxide	8.1 tons/yr
Volatile Organic Compounds	0.7 tons/yr
Formaldehyde	0.11 tons/yr

Annual emissions shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.

(9 VAC 5-50-260)

29. **Emission Limits (P2)** - Emissions from the operation of each of the 97 mmBTU/hr boilers (Units 4, 5 and 6) shall not exceed the limits specified below:

Pollutant	Fuel Type	lbs/mmBTU (per boiler)	lbs/hr (per boiler)
Total Suspended Particulate	Propane Gas	0.007	0.64
	Natural Gas	0.006	0.59
PM-10	Propane Gas	0.007	0.64
	Natural Gas	0.006	0.59
Sulfur Dioxide	Natural Gas	0.001	0.06
Nitrogen Oxides (as NO ₂)	Propane Gas	0.090	8.73
	Natural Gas	0.090	8.73
Carbon Monoxide	Propane Gas	0.060	5.80
	Natural Gas	0.060	5.80
Volatile Organic Compounds	Propane Gas	0.005	0.53
	Natural Gas	0.003	0.26

Formaldehyde	Natural Gas	0.000466	0.045
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*30-day rolling average
 (9 VAC 5-50-260)

30. **Emission Limits (P2)** – Total emissions from the operation of the 97 mmBTU/hr boilers (Units 4, 5 and 6), combined, shall not exceed the limits specified below:

Total Suspended Particulate	5.2 tons/yr
PM-10	5.2 tons/yr
Sulfur Dioxide	0.5 tons/yr
Nitrogen Oxides (as NO ₂)	76.5 tons/yr
Carbon Monoxide	50.8 tons/yr
Volatile Organic Compounds	2.5 tons/yr
Formaldehyde	0.4 tons/yr

Annual emissions shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
 (9 VAC 5-50-260)

31. **Visible Emission Limit** - Visible emissions from each of the 97 mmBTU/hr boiler (Units 4, 5 and 6) stack shall not exceed 5% opacity except during one six-minute period in any one hour in which visible emissions shall not exceed 20% opacity as determined by EPA Method 9 (reference 40 CFR Part 60, Appendix A).
 (9 VAC 5-50-80 and 9 VAC 5-50-260)
32. **Requirements by Reference** - Except where this permit is more restrictive than the applicable requirement, the NSPS equipment as described in Condition 2 shall be operated in compliance with the requirements of 40 CFR Part 60, Subpart Dc.
 (9 VAC 5-50-400 and 9 VAC 5-50-410)
33. **Test/Monitoring Ports** - The permitted facility shall be constructed so as to allow for emissions testing upon reasonable notice at any time, using appropriate methods. Test ports shall be provided on each of the 97 mmBTU/hr boiler (Units 4, 5 and 6) stacks.
 (9 VAC 5-50-30 F)

Starch Brewhouse Distribution System (Unit 10)	0.01	1.0	1.0
Barley Malt and Rice Receiving System (Unit 10)	0.01	1.0	1.0
Barley Malt Storage, Screening, and Milling System (Unit 10)	0.01	1.0	1.0
Rice Storage, Screening, and Milling System (Unit 10)	0.01	1.0	1.0
Pellet Bulk Storage (Unit 13)	0.01	1.0	1.0
Diatomaceous Earth Handling System (Unit 15)	0.01	1.0	1.0
Lime Storage and Handling System (Unit 16)	0.01	1.0	1.0

Annual emissions shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
 (9 VAC 5-50-260 and 9 VAC 5-50-180)

42. **Emission Limits (P2)** - Prior to commencement of operation of the brewhouse, volatile organic compound emissions from the operation of the equipment listed below shall not exceed the following limits:

Equipment	tons/month	tons/year
Conditioning Process (Unit 25)	0.66	3.00
By-Products Handling System (Unit 26)	0.22	1.00
Packaging (Unit 27)	24.4	110.80
Conveyor Line Lubrication (Unit 28)	1.10	5.00
Product Marking (Unit 29)	1.88	8.55
Carton Assembly (Unit 30)	0.22	1.00
Bottle Label Application (Unit 30)	2.86	13.00
Defilling (Unit 32)	2.50	16.00

Annual emissions shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
 (9 VAC 5-50-260 and 9 VAC 5-50-180)

OPERATING/EMISSIONS LIMITATIONS: BREWING AND PACKAGING

34. **Throughput (P2)** – Prior to the commencement of the operation of the brewhouse, the annual throughput of beer through packaging shall not exceed eight million barrels per year, calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
(9 VAC 5-80-10 H)
35. **Production (P2)** – Beginning with the commencement of operation of the brewhouse, the production of beer shall not exceed ten million barrels per year, calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
(9 VAC 5-80-10 H)
36. **Throughput (P2)** - The annual throughput of starch shall not exceed 39,370 tons per year, calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
(9 VAC 5-80-10 H)
37. **Throughput (P2)** - The annual throughput of barley malt and rice shall not exceed 149,650 tons per year, calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
(9 VAC 5-80-10 H)
38. **Throughput (P2)** – The annual throughput of diatomaceous earth shall not exceed 2,270 tons per year, calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
(9 VAC 5-80-10 H)
39. **Throughput (P2)** - The annual throughput of lime shall not exceed 14,100 tons per year, calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
(9 VAC 5-80-10 H)
40. **Throughput (P2)** - The annual throughput of pellets shall not exceed 47,400 tons per year, calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
(9 VAC 5-80-10 H)
41. **Emission Limits (P2)** – Particulate emissions (TSP and PM-10) from the operation of the following equipment shall not exceed the limits specified below:

Equipment	gr/dscf	lbs/hr	tons/year
Starch Unloading Pneumatic System (Unit 10)	0.01	2.3	10.0
Starch Brewhouse Storage System (Unit 10)	0.01	2.3	10.0

43. **Emission Limits (P2)**- Beginning with commencement of operation of the brewhouse, volatile organic compound emissions from the operation of the equipment listed below shall not exceed the following limits:

Equipment	tons/month	tons/year	
Brewing Process (Unit 20)	0.44	2.00	5.10
Extract/Grain Separation Process (Unit 21)	1.10	5.00	0
Wort Processing (Unit 22)	0.22	1.00	0
Fermentation (Unit 23)	1.76	8.00	4.5
Aging Process (Unit 24)	0.44	2.00	2.00
Conditioning Process (Unit 25)	0.88	4.00	3.20
By-Products Handling System (Unit 26)	0.66	25.0 3.00	1.50 17.2
Packaging (Unit 27)	30.8	140.00	
Conveyor Line Lubrication (Unit 28)	1.76	8.00	
Product Marking (Unit 29)	2.42	11.00	
Carton Assembly (Unit 30)	0.22	1.00	
Bottle Label Application (Unit 30)	3.52	16.00	
Defilling (Unit 32)	2.50	16.00	

CO₂ Recovery Syst
 Annual emissions shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
 (9 VAC 5-50-260 and 9 VAC 5-50-180)

44. **Emission Limits (P2)** – Particulate emissions (TSP and PM-10) from the operation of the filter media dryer shall not exceed 1.0 lb/hr and 1.0 ton/yr. Annual emissions shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
 (9 VAC 5-50-260 and 9 VAC 5-50-180)
45. **Visible Emission Limit** - Visible emissions from all fabric filters shall not exceed 5% opacity as determined by EPA Method 9 (reference 40 CFR Part 60, Appendix A).
 (9 VAC 5-50-80 and 9 VAC 5-50-260)

46. **Requirements by Reference** - If the existing or permitted Coors' Shenandoah Brewery facility is modified by a relaxation in any enforceable limitation on the capacity or emissions of the source which would have made this facility subject to the requirements of 40 CFR § 52.21 on May 2, 1997, then the requirements of 40 CFR § 52.21 shall apply to the facility as though construction had not yet commenced on the source or modification.
(9 VAC 5-80-1700)

OPERATING/EMISSIONS LIMITATIONS: WASTEWATER TREATMENT

47. **Fuel** - The approved fuel for the wastewater treatment biogas flare and biogas boiler is primary digester gas. The approved fuel for the flare pilot flame is propane. The flare and/or biogas boiler must be used for combustion of all digester gas. A change in the fuel may require a permit to modify and operate.
(9 VAC 5-80-10 H)
48. **Emission Limits (P2)** - Volatile organic compounds from the operation of the wastewater collection/treatment and sludge handling systems shall not exceed 0.88 tons per month and 4.00 tons per year. Annual emissions shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
(9 VAC 5-50-260 and 9 VAC 5-50-180)

INITIAL COMPLIANCE DETERMINATION

49. **Stack Test** - Initial performance tests shall be conducted for nitrogen oxides from two 97 mmBTU/hr boilers (Units 5 and 6) to determine compliance with the emission limits contained in Conditions 29 and 30. The tests shall be performed, and demonstrate compliance, within 60 days after achieving the maximum production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility. Tests shall be conducted and reported and data reduced as set forth in 9 VAC 5-50-30, and the test methods and procedures contained in each applicable section or subpart listed in 9 VAC 5-50-410. The details of the tests are to be arranged with the Director, Valley Region. The permittee shall submit a test protocol at least 30 days prior to testing. Four copies of the test results shall be submitted to the Director, Valley Region within 45 days after test completion and shall conform to the test report format enclosed with this permit.
(9 VAC 5-50-30 and 9 VAC 5-80-10 J)
50. **Visible Emissions Evaluation** - Concurrently with the initial performance tests, Visible Emission Evaluations (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9, shall also be conducted on two 97 mmBTU/hr boilers (Units 5 and 6). Each test shall consist of ten sets of 24 consecutive observations (at 15 second intervals) to yield a six minute average. The details of the tests are to be arranged with the Director, Valley Region. The evaluation shall be performed within 60 days after achieving the maximum

production rate at which the facility will be operated but in no event later than 180 days after start-up of the permitted facility.
(9 VAC 5-50-30 and 9 VAC 5-80-10 J)

CONTINUOUS EMISSION MONITORING SYSTEM (CEMS)

51. **CEMS - Continuous Emission Monitoring Systems** shall be installed to measure and record the concentrations of nitrogen oxides emitted by the three 97 mmBTU/hr boilers (Units 4, 5 and 6). Nitrogen oxide monitor(s) shall be co-located with a CO₂ or O₂ diluent monitor. The monitor(s) shall meet the certification, operation, and maintenance requirements of 40 CFR § 60.13 and the quality assurance requirements of 40 CFR, Part 60, Appendix F, or a DEQ approved equivalent method. A valid data point must be obtained every 15 minutes from each of the boilers being monitored in accordance with 40 CFR § 60.13 (e)(2).
(9 VAC 5-50-40)
52. **CEMS Performance Evaluations** – Performance evaluations of the continuous monitoring systems shall be conducted in accordance with 40 CFR Part 60, Appendix B, and shall take place during the performance tests under 9 VAC 5-50-30 or within 30 days thereafter. Two copies of the performance evaluations report shall be submitted to the Director, Valley Region within 45 days of the evaluation. The continuous monitoring systems shall be installed and operational prior to conducting initial performance tests required in Conditions 49 and 50. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation and calibration of the device.
(9 VAC 5-50-40)
53. **CEMS** – All continuous monitoring required by this permit shall meet minimum data availability of greater than or equal to 90% of the individual boiler operating hours of each of the three (3) 97 mmBTU/hr boilers (Units 4, 5 and 6) monitored sequentially, on a calendar quarter basis. The monitoring shall meet the certification, operation, and maintenance requirements of 40 CFR 60.13 and the quality assurance requirements of 40 CFR, Part 60, Appendix F, or a DEQ approved equivalent method.
(9 VAC 5-50-40)
54. **CEMS** – The continuous monitoring data generated by all continuous emission monitoring systems shall be used to determine compliance with the emission limitations in Conditions 29 and 30; compliance shall be demonstrated on a calendar quarter basis. The permittee shall install and maintain instrumentation necessary to determine compliance during on-site inspection by DEQ. This instrumentation should indicate and record the following for the three (3) 97 mmBTU/hr boilers (Units 4, 5 and 6), at minimum:
 - a. The hourly heat input of each boiler in mmBTU/hr.
 - b. The total hourly heat input of all three boilers in mmBTU/hr.

- c. The 30-day rolling average of NO_x emission rate in lbs/mmBTU and lb/hr, on a daily basis for each boiler.

The data shall be kept on file for the most recent five year period and made available to the DEQ upon request.

(9 VAC 5-50-40)

55. **CEMS Reports** - The permittee shall submit reports to the Director, Valley Region, within 30 days after the end of each calendar quarter for the three 97 mmBTU/hr boilers (Units 4, 5 and 6). Each quarterly report shall contain, at a minimum, the following:

- a. The source operating time, in hours.
- b. For each boiler operating day, the information required under 40 CFR § 60.49b (g)(1), (g)(2), and (g)(3).
- c. The quality assurance information required under 40 CFR § 60.49b (g)(10).
- d. The date(s) and time(s) of all outages of the NO_x continuous monitoring system, with reasons for the outages, and corrective actions taken.
- e. The calculated hourly NO_x emission rates, in lbs/hr.

One copy of the quarterly report shall be sent to EPA at the following address:

Associate Director
Office of Air Enforcement (3AP10)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

(9 VAC 5-170-160 and 9 VAC 5-50-50)

RECORDS

56. **On Site Records** - The permittee shall maintain records of emission data and operating parameters as necessary to demonstrate compliance with this permit. The content and format of such records shall be arranged with the Director, Valley Region. These records shall include, but are not limited to:
- a. The four week period and annual throughput of natural gas (in million cubic feet) and propane (in 1000 gallons) for the three 18 mmBTU/hr boilers (Units 1, 2 and 3). The annual throughput shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.

- b. The daily, four week period, and annual throughput of natural gas (in million cubic feet) and propane (in 1000 gallons) for the three 97 mmBTU/hr boilers (Units 4, 5 and 6). The annual throughput shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- c. Annual throughput of starch (in tons), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- d. Annual throughput of barley malt and rice (in tons), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- e. Annual throughput of diatomaceous earth (in tons), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- f. Annual throughput of lime (in tons), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- g. Annual throughput of pellets (in tons), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- h. Annual total of beer brewed (in 1000 barrels), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- i. Annual throughput of waste beer through waste beer tanks (in 1000 barrels), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- j. Annual total of CO₂ consumed (in pounds) during conditioning activities, calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- k. The four week period and annual particulate emissions (in tons) from the grain handling system, the pelletizing process, the diatomaceous earth handling system, and the lime storage and handling system. Annual emissions shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- l. The four week period and annual particulate emissions (in tons) from the filter media dryer. Annual emissions shall be calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- m. Annual total of cans filled (in 1000 barrels of beer), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- n. Annual total of bottles filled (in 1000 barrels of beer), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.

- o. Annual total of kegs filled (in 1000 barrels of beer), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- p. Annual total of beer packaged (in 1000 barrels of beer), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- q. The annual total of bottle glass recovered from bottle defill crushing operations (in tons), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- r. The annual total of can aluminum recovered from can shredding operations (in tons), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- s. The annual total of conveyor line lubricant used (in gallons), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- t. The annual total of product marking ink used (in gallons), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- u. The annual total of carton assembly glue used (in pounds), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- v. The annual total of label application glue used (in pounds), calculated every four (4) week period as the sum of each consecutive thirteen (13) four (4) week period.
- w. Records demonstrating compliance with Condition 25.
- x. Continuous monitoring data required in Condition 54.
- y. Results of all stack tests, visible emission evaluations, and performance evaluations.

These records shall be available for inspection by the DEQ and shall be current for the most recent five years.

(9 VAC 5-50-50)

NOTIFICATIONS

57. **Initial Notifications** - The permittee shall furnish written notification to the Director, Valley Region:
- a. The actual date on which construction of the new emission unit(s) commenced within ten days after such date.
 - b. The anticipated startup date of the new emission unit(s) postmarked not more than 60 days nor less than 30 days prior to such date.
 - c. The actual startup date of the new emission unit(s) within ten days after such date.

- d. The anticipated date of the visible emission evaluation and performance tests of the two (2) 97 mmBTU/hr boilers (Units 5 and 6) postmarked at least 30 days prior to such dates.
- e. The demonstration of continuous monitoring system's performance postmarked at least 30 days prior to the test.

Copies of the written notification referenced in items a through e above (only for Units 5 and 6) are to be sent to the EPA at the address listed in Condition 55.

(9 VAC 5-50-50)

GENERAL CONDITIONS

58. **Permit Invalidation** - The portions of this permit authorizing construction and operation of the brewhouse and two 97 mmBTU/hr boilers (Units 5 and 6) shall become invalid, unless an extension is granted by the DEQ, if a program for construction of the brewhouse and the three 97 mmBTU/hr boilers (Units 4, 5 and 6) is discontinued for a period of eighteen (18) months or more.
(9 VAC 5-50-50)

59. **Right of Entry** - The permittee shall allow authorized local, state and federal representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises on which the facility is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit or the State Air Pollution Control Board Regulations;
- c. To inspect at reasonable times any facility, equipment, or process subject to the terms and conditions of this permit or the State Air Pollution Control Board Regulations; and
- d. To sample or test at reasonable times.

For purposes of this condition, the time for inspection shall be deemed reasonable during regular business hours or whenever the facility is in operation. Nothing contained herein shall make an inspection time unreasonable during an emergency.

(9 VAC 5-170-130)

60. **Notification for Facility or Control Equipment Malfunction** - The permittee shall furnish notification to the Director, Valley Region, of malfunctions of the affected facility or related air pollution control equipment that may cause excess emissions for more than one hour, by facsimile transmission, telephone or telegraph. Such notification shall be made as soon as practicable but not later than four daytime business hours of the

malfunction. The permittee shall provide a written statement giving all pertinent facts, including the estimated duration of the breakdown, within 14 days of the occurrence. When the condition causing the failure or malfunction has been corrected and the equipment is again in operation, the permittee shall notify Director, Valley Region, in writing.

(9 VAC 5-20-180 C)

61. **Violation of Ambient Air Quality Standard** - The permittee shall, upon request of the DEQ, reduce the level of operation or shut down a facility, as necessary to avoid violating any primary ambient air quality standard and shall not return to normal operation until such time as the ambient air quality standard will not be violated.

(9 VAC 5-20-180 I)

62. **Maintenance/Operating Procedures** - The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment, monitoring devices, and process equipment which affect such emissions:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.

(9 VAC 5-50-20 E)

63. **Permit Suspension/Revocation** - This permit may be suspended or revoked if the permittee:

- a. Knowingly makes material misstatements in the application for this permit or any amendments to it;
- b. Fails to comply with the conditions of this permit;
- c. Fails to comply with any emission standards applicable to the equipment listed in Condition 2;

- d. Causes emissions from this facility which result in violations of, or interferes with the attainment and maintenance of, any ambient air quality standard;
- e. Fails to operate this facility in conformance with any applicable control strategy, including any emission standards or emission limitations, in the State Implementation Plan in effect on the date that the application for this permit is submitted;
- f. Fails to modify or operate this facility in accordance with the application for this permit or any amendments to it; or
- g. Allows the permit to become invalid.

(9 VAC 5-80-10 K)

64. **Change of Ownership** - In the case of a transfer of ownership of a stationary source, the new owner shall abide by any current permit issued to the previous owner. The new owner shall notify the Director, Valley Region of the change in ownership within 30 days of the transfer.

(9 VAC 5-80-10 O)

65. **Registration/Update** - Annual requirements to fulfill legal obligations to maintain current stationary source emissions data will necessitate a prompt response by the permittee to requests by the DEQ or the Board for information to include, as appropriate: process and production data; changes in control equipment; and operating schedules. Such requests for information from the DEQ will either be in writing or by personal contact. The availability of information submitted to the DEQ or the Board will be governed by applicable provisions of the Freedom of Information Act, §§ 2.1-340 through 2.1-348 of the Code of Virginia, § 10.1-1314 (addressing information provided to the Board) of the Code of Virginia, and 9 VAC 5-170-60 of the State Air Pollution Control Board Regulations. Information provided to federal officials is subject to appropriate federal law and regulations governing confidentiality of such information.

(9 VAC 5-20-160 and 9 VAC 5-170-60)

66. **Permit Copy** - The permittee shall keep a copy of this permit on the premises of the facility to which it applies.

(9 VAC 5-170-160)

Attachment C

Emission Calculations

INDUSTRIAL BOILER WORKSHEET

CRITERIA POLLUTANTS

07/07/99

Source Name: Coors Brewing Company - hourly for one 97 mmBTU/hr boiler

Registration #: 81012

Boiler Capacity: 97.0 million BTU/hr

THROUGHPUTS	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	
per hour	---	gal	gal	gal	gal	94 mcf	1060 gal	
per year	---	gal	gal	gal	gal	821,779 mcf	9,286,557 gal	
max. allow. / yr	5,664,900 gal	5,820,000 gal	5,900,833 gal	6,157,391 gal	6,341,194 gal	821,779 mcf	9,286,557 gal	
Hours/yr	---	---	---	---	---	8760	8760	17520 <- Total HR/YR

EMISSION FACTORS:

FUEL:	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG
UNITS:	(	lb/thousand gallons			)	(lb/MMft3)	(lb/thousand gallon)
SCC#:	10200401	10200404	10200504	10200501	10200501	10200602	10201002
SULFUR	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %	---	15 gr/100cuft
Heat Content	150,000	146,000	144,000	138,000	134,000	1,034	91,500
	BTU/gal	BTU/gal	BTU/gal	BTU/gal	BTU/gal	BTU/ft3	BTU/gal

Emission Factors

TSP	9.19 S	10	7	2	2	6	0.6
	+3.22						
PM10	8.03 S	8.6	6	1	1	6	0.6
	+2.65						
SO2	157 S	157 S	150 S	142 S	142 S	1	0.1 S
CO	5	5	5	5	5	60	5.5
NOx	55	55	20	20	20	90	8.2
VOC	0.28	0.28	0.2	0.2	0.2	3	0.5

LEAD is included on HAPs worksheet

NOTE: < - revised based on small boiler data from AP-42 5th ed. Sup.B,C,D (as of 9/1/98)

EMISSIONS, UNCONTROLLED & PREDICTED: max hourly, expected annual throughput

LB/HR	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	MAXIMUM LB/HR
TSP	---	---	---	---	---	0.56	0.64	0.64
PM10	---	---	---	---	---	0.56	0.64	0.64
SO2	---	---	---	---	---	0.09	1.59	1.59
CO	---	---	---	---	---	5.63	5.83	5.83
NOx	---	---	---	---	---	8.44	8.69	8.69
VOC	---	---	---	---	---	0.28	0.53	0.53

LEAD is included on HAPs worksheet

TN/YR	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	TOTAL TN/YR
TSP	---	---	---	---	---	2.47	2.79	5.25
PM10	---	---	---	---	---	2.47	2.79	5.25
SO2	---	---	---	---	---	0.41	6.96	7.38
CO	---	---	---	---	---	24.65	25.54	50.19
NOx	---	---	---	---	---	36.98	38.07	75.05
VOC	---	---	---	---	---	1.23	2.32	3.55

LEAD is included on HAPs worksheet

SUGGESTED PERMIT LIMITS: same as uncontrolled
pollutants < 0.5 tn/yr not listed

	LB/HR	TN/YR
TSP	0.64	5.25
PM10	0.64	5.25
SO2	1.59	7.38
CO	5.83	50.19
NOx	8.69	75.05
VOC	0.5	3.55
LEAD is included on HAPs worksheet		

INDUSTRIAL BOILER WORKSHEET

CRITERIA POLLUTANTS

07/07/99

Source Name: Coors Brewing Company - annual for three 97 mmBTU/hr boiler

Registration #: 81012

Boiler Capacity: 291.0 million BTU/hr

THROUGHPUTS	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	
per hour	---	gal	---	gal	---	gal	---	281 mcf
per year	---	gal	---	gal	---	gal	---	1,556,000 gal
max. allow. / yr	16,994,400 gal	17,460,000 gal	17,702,500 gal	18,472,174 gal	19,023,582 gal	2,465,338 mcf	27,859,672 gal	
Hours/yr	---	---	---	---	---	5920	489	6409 <- Total HR/YR

EMISSION FACTORS:

FUEL:	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG
UNITS:	(	lb/thousand gallons			)	(lb/MMft3)	(lb/thousand gallon)
SCC#:	10200401	10200404	10200504	10200501	10200501	10200602	10201002
SULFUR	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %	---	15 gr/100cuft
Heat Content	150,000	146,000	144,000	138,000	134,000	1,034	91,500
	BTU/gal	BTU/gal	BTU/gal	BTU/gal	BTU/gal	BTU/ft3	BTU/gal

Emission Factors

TSP	9.19 S	10	7	2	2	6	0.6
	+3.22						
PM10	8.03 S	8.6	6	1	1	6	0.6
	+2.65						
SO2	157 S	157 S	150 S	142 S	142 S	1	0.1 S
CO	5	5	5	5	5	60	5.5
NOx	55	55	20	20	20	90	8.2
VOC	0.28	0.28	0.2	0.2	0.2	3	0.5

LEAD is included on HAPs worksheet

NOTE: < - revised based on small boiler data from AP-42 5th ed. Sup.B,C,D (as of 9/1/98)

EMISSIONS, UNCONTROLLED & PREDICTED: max hourly, expected annual throughput

LB/HR	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	MAXIMUM LB/HR
TSP	---	---	---	---	---	1.69	1.91	1.91
PM10	---	---	---	---	---	1.69	1.91	1.91
SO2	---	---	---	---	---	0.28	4.77	4.77
CO	---	---	---	---	---	16.89	17.49	17.49
NOx	---	---	---	---	---	25.33	26.08	26.08
VOC	---	---	---	---	---	0.84	1.59	1.59

LEAD is included on HAPs worksheet

TN/YR	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	TOTAL TN/YR
TSP	---	---	---	---	---	5.00	0.47	5.46
PM10	---	---	---	---	---	5.00	0.47	5.46
SO2	---	---	---	---	---	0.83	1.17	2.00
CO	---	---	---	---	---	49.98	4.28	54.26
NOx	---	---	---	---	---	74.97	6.38	81.35
VOC	---	---	---	---	---	2.50	0.39	2.89

LEAD is included on HAPs worksheet

SUGGESTED PERMIT LIMITS: same as uncontrolled
pollutants < 0.5 tn/yr not listed

	LB/HR	TN/YR
TSP	1.91	5.46
PM10	1.91	5.46
SO2	4.77	2.00
CO	17.49	54.26
NOx	26.08	81.35
VOC	1.6	2.89
LEAD is included on HAPs worksheet		

INDUSTRIAL BOILER WORKSHEET

CRITERIA POLLUTANTS

07/07/99

Source Name: Coors Brewing Company - hourly for one 18 mmBTU/hr boiler

Registration #: 81012

Boiler Capacity: 18.0 million BTU/hr

THROUGHPUTS	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	
per hour	---	gal	---	gal	---	gal	---	gal
per year	---	gal	---	gal	---	gal	---	gal
max. allow. / yr	1,051,200	gal	1,080,000	gal	1,095,000	gal	1,142,609	gal
Hours/yr	---	---	---	---	---	---	---	---
						17 mcf	197 gal	
						152,495 mcf	1,723,279 gal	
						152,495 mcf	1,723,279 gal	
						8760	8760	17520 <- Total HR/YR

EMISSION FACTORS:

FUEL:	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG
UNITS:	(	lb/thousand gallons	)			(lb/MMft3)	(lb/thousand gallon)
SCC#:	10200401	10200404	10200504	10200501	10200501	10200602	10201002
SULFUR	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %	---	15 gr/100cuft
Heat Content	150,000	146,000	144,000	138,000	134,000	1,034	91,500
	BTU/gal	BTU/gal	BTU/gal	BTU/gal	BTU/gal	BTU/ft3	BTU/gal

Emission Factors

TSP	9.19 S	10	7	2	2	6	0.6
	+3.22						
PM10	8.03 S	8.6	6	1	1	6	0.6
	+2.65						
SO2	157 S	157 S	150 S	142 S	142 S	1	0.1 S
CO	5	5	5	5	5	34	3.2
NOx	55	55	20	20	20	137	19.1
VOC	0.28	0.28	0.2	0.2	0.2	3	0.5

LEAD is included on HAPs worksheet

NOTE: < - revised based on small boiler data from AP-42 5th ed. Sup.B,C,D (as of 9/1/98)

EMISSIONS, UNCONTROLLED & PREDICTED: max hourly, expected annual throughput

LB/HR	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	MAXIMUM LB/HR
TSP	---	---	---	---	---	0.10	0.12	0.12
PM10	---	---	---	---	---	0.10	0.12	0.12
SO2	---	---	---	---	---	0.02	0.30	0.30
CO	---	---	---	---	---	0.59	0.63	0.63
NOx	---	---	---	---	---	2.38	3.76	3.76
VOC	---	---	---	---	---	0.05	0.10	0.10

LEAD is included on HAPs worksheet

TN/YR	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	TOTAL TN/YR
TSP	---	---	---	---	---	0.46	0.52	0.97
PM10	---	---	---	---	---	0.46	0.52	0.97
SO2	---	---	---	---	---	0.08	1.29	1.37
CO	---	---	---	---	---	2.59	2.76	5.35
NOx	---	---	---	---	---	10.45	16.46	26.90
VOC	---	---	---	---	---	0.23	0.43	0.66

LEAD is included on HAPs worksheet

SUGGESTED PERMIT LIMITS: same as uncontrolled
pollutants < 0.5 tn/yr not listed

	LB/HR	TN/YR
TSP	0.12	0.97
PM10	0.12	0.97
SO2	0.30	1.37
CO	0.63	5.35
NOx	3.76	26.90
VOC	0.1	0.66

LEAD is included on HAPs worksheet

INDUSTRIAL BOILER WORKSHEET

CRITERIA POLLUTANTS

07/07/99

Source Name: Coors Brewing Company - annual for three 18 mmBTU/hr boiler

Registration # 81012

Boiler Capacity 54.0 million BTU/hr

THROUGHPUTS	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG
per hour	--- gal	--- gal	--- gal	--- gal	--- gal	52 mcf	590 gal
per year	--- gal	--- gal	--- gal	--- gal	--- gal	464,000 mcf	433,000 gal
max. allow. / yr	3,153,600 gal	3,240,000 gal	3,285,000 gal	3,427,826 gal	3,530,149 gal	457,485 mcf	5,169,836 gal
Hours/yr	---	---	---	---	---	8885	734
							9618 <- Total HR/YR

EMISSION FACTORS:

FUEL:	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG
UNITS:	(	lb/thousand gallons	)	(	lb/MMBtu	)	(lb/thousand gallon)
SCC#:	10200401	10200404	10200504	10200501	10200501	10200602	10201002
SULFUR	0.5 %	0.5 %	0.5 %	0.5 %	0.5 %	---	15 gr/100cuft
Heat Content	150,000 BTU/gal	146,000 BTU/gal	144,000 BTU/gal	138,000 BTU/gal	134,000 BTU/gal	1,034 BTU/ft3	91,500 BTU/gal

Emission Factors

TSP	9.19 S	10	7	2	2	6	0.6
	+3.22						
PM10	8.03 S	8.6	6	1	1	6	0.6
	+2.65						
SO2	157 S	157 S	150 S	142 S	142 S	1	0.1 S
CO	5	5	5	5	5	34	3.2
NOx	55	55	20	20	20	137	19.1
VOC	0.28	0.28	0.2	0.2	0.2	3	0.5

LEAD is included on HAPs worksheet

NOTE: < - revised based on small boiler data from AP-42 5th ed. Sup.B,C,D (as of 9/1/98)

EMISSIONS, UNCONTROLLED & PREDICTED: max hourly, expected annual throughput

LB/HR	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	MAXIMUM LB/HR
TSP	---	---	---	---	---	0.31	0.35	0.35
PM10	---	---	---	---	---	0.31	0.35	0.35
SO2	---	---	---	---	---	0.05	0.89	0.89
CO	---	---	---	---	---	1.78	1.89	1.89
NOx	---	---	---	---	---	7.15	11.27	11.27
VOC	---	---	---	---	---	0.16	0.30	0.30

LEAD is included on HAPs worksheet

TN/YR	#6 OIL	#5 OIL	#4 OIL	#2 OIL	#1 OIL	GAS	LPG	TOTAL TN/YR
TSP	---	---	---	---	---	1.39	0.13	1.52
PM10	---	---	---	---	---	1.39	0.13	1.52
SO2	---	---	---	---	---	0.23	0.32	0.56
CO	---	---	---	---	---	7.89	0.69	8.58
NOx	---	---	---	---	---	31.78	4.14	35.92
VOC	---	---	---	---	---	0.70	0.11	0.80

LEAD is included on HAPs worksheet

SUGGESTED PERMIT LIMITS: same as uncontrolled
pollutants < 0.5 tn/yr not listed

	LB/HR	TN/YR
TSP	0.35	1.52
PM10	0.35	1.52
SO2	0.89	0.56
CO	1.89	8.58
NOx	11.27	35.92
VOC	0.3	0.80
LEAD is included on HAPs worksheet		

Coors Brewing Company
Permit # VRO81012
VOC Calculations - Brewing

Interim Limits

Process	Capacity		Emission Factor		Control Efficiency		Emission Rate		Emission Limit	
Brewing	-	-	0.725	lb/1000 bbl	45.00	%	0.00	tons VOC/month	-	-
	-	-	0.725	lb/1000 bbl	45.00	%	0.00	tons VOC/year	-	-
Extract/Grain Processing	-	-	0.64	lb/1000 bbl	0.00	%	0.00	tons VOC/month	-	-
	-	-	0.64	lb/1000 bbl	0.00	%	0.00	tons VOC/year	-	-
Wort Processing	-	-	0.106	lb/1000 bbl	0.00	%	0.00	tons VOC/month	-	-
	-	-	0.106	lb/1000 bbl	0.00	%	0.00	tons VOC/year	-	-
Fermenting	-	-	5.1	lb/1000 bbl	69.00	%	0.00	tons VOC/month	-	-
	-	-	5.1	lb/1000 bbl	69.00	%	0.00	tons VOC/year	-	-
Aging	-	-	4.24	lb/1000 bbl	91.00	%	0.00	tons VOC/month	-	-
	-	-	4.24	lb/1000 bbl	91.00	%	0.00	tons VOC/year	-	-
Conditioning: Fill-On-Vent	7.25E+06	lb CO2/month	0.174	lb/1000 lb CO2	0.00	%	0.63	tons VOC/month	-	-
	3.06E+07	lb CO2/yr	0.174	lb/1000 lb CO2	0.00	%	2.66	tons VOC/year	-	-
Conditioning: Evacuation	5.34E+04	bbl evac/month	1.05	lb/1000 bbl evac	0.00	%	0.03	tons VOC/month	-	-
	6.40E+05	bbl evac/yr	1.05	lb/1000 bbl evac	0.00	%	0.34	tons VOC/year	-	-
Conditioning: Total	-	-	-	-	-	-	0.66	tons VOC/month	0.66	tons VOC/month
	-	-	-	-	-	-	3.00	tons VOC/year	3.00	tons VOC/year
By-Products Handling*	-	-	15.112	lb/1000 bbl	97.00	%	0.00	tons VOC/month	0.22	tons VOC/month
	-	-	15.112	lb/1000 bbl	97.00	%	0.00	tons VOC/year	1.00	tons VOC/year

*Note: Prior to construction of the brewery, this process consists only of waste beer handling tanks. Those tanks have negligible emissions and have been omitted from the above emission table.

Final Limits

Process	Capacity		Emission Factor		Control Efficiency		Emission Rate		Emission Limit	
Brewing	1.75E+06	bbl/month	0.725	lb/1000 bbl	45.00	%	0.35	tons VOC/month	0.44	tons VOC/month
	1.00E+07	bbl/year	0.725	lb/1000 bbl	45.00	%	1.99	tons VOC/year	2.00	tons VOC/year
Extract/Grain Processing	3.42E+06	bbl/month	0.64	lb/1000 bbl	0.00	%	1.09	tons VOC/month	1.10	tons VOC/month
	1.00E+07	bbl/year	0.64	lb/1000 bbl	0.00	%	3.20	tons VOC/year	5.00	tons VOC/year
Wort Processing	4.17E+06	bbl/month	0.106	lb/1000 bbl	0.00	%	0.22	tons VOC/month	0.22	tons VOC/month
	1.00E+07	bbl/year	0.106	lb/1000 bbl	0.00	%	0.53	tons VOC/year	1.00	tons VOC/year
Fermenting	2.20E+06	bbl/month	5.1	lb/1000 bbl	69.00	%	1.74	tons VOC/month	1.76	tons VOC/month
	1.00E+07	bbl/year	5.1	lb/1000 bbl	69.00	%	7.91	tons VOC/year	8.00	tons VOC/year
Aging	2.17E+06	bbl/month	4.24	lb/1000 bbl	91.00	%	0.41	tons VOC/month	0.44	tons VOC/month
	1.00E+07	bbl/yr	4.24	lb/1000 bbl	91.00	%	1.91	tons VOC/year	2.00	tons VOC/year
Conditioning: Fill-On-Vent	9.75E+06	lb CO2/month	0.174	lb/1000 lb CO2	0.00	%	0.85	tons VOC/month	-	tons VOC/month
	4.21E+07	lb CO2/yr	0.174	lb/1000 lb CO2	0.00	%	3.66	tons VOC/year	-	tons VOC/year
Conditioning: Evacuation	5.34E+04	bbl evac/month	1.05	lb/1000 bbl evac	0.00	%	0.03	tons VOC/month	-	tons VOC/month
	6.40E+05	bbl evac/yr	1.05	lb/1000 bbl evac	0.00	%	0.34	tons VOC/year	-	tons VOC/year
Conditioning: Total	-	-	-	-	-	-	0.88	tons VOC/month	0.88	tons VOC/month
	-	-	-	-	-	-	4.00	tons VOC/year	4.00	tons VOC/year
By Products Handling	2.29E+06	bbl/month	15.112	lb/1000 bbl	97.00	%	0.52	tons VOC/month	0.66	tons VOC/month
	1.00E+07	bbl/year	15.112	lb/1000 bbl	97.00	%	2.27	tons VOC/year	3.00	tons VOC/year

Coors Brewing Company
Permit # VRO81012
VOC Calculations - Packaging

Interim Limits

Process	Capacity		Emission Factor		Control Efficiency		Emission Rate		Emission Limit	
Packaging: Bottles	4.37E+05	bbl/month	36	lb/1000 bbl	0.00	%	7.86	tons VOC/month	-	-
	1.98E+06	bbl/year	36	lb/1000 bbl	0.00	%	35.71	tons VOC/year	-	-
Packaging: Cans	8.73E+05	bbl/month	37.5	lb/1000 bbl	0.00	%	16.38	tons VOC/month	-	-
	3.97E+06	bbl/year	37.5	lb/1000 bbl	0.00	%	74.40	tons VOC/year	-	-
Packaging: Kegs	4.37E+05	bbl/month	0.675	lb/1000 bbl	0.00	%	0.15	tons VOC/month	-	-
	1.98E+06	bbl/year	0.675	lb/1000 bbl	0.00	%	0.67	tons VOC/year	-	-
Packaging: Total	-	-	-	-	-	-	24.38	tons VOC/month	24.40	tons VOC/month
	-	-	-	-	-	-	110.78	tons VOC/year	110.80	tons VOC/year
Conveyor Line Lubrication	9.50E+02	gal/month	2.32	lb/gal	0.00	%	1.10	tons VOC/month	1.10	tons VOC/month
	4.31E+03	gal/year	2.32	lb/gal	0.00	%	5.00	tons VOC/year	5.00	tons VOC/year
Product Marking	4.04E+02	gal/month	9.28	lb/gal	0.00	%	1.88	tons VOC/month	1.88	tons VOC/month
	1.84E+03	gal/yr	9.28	lb/gal	0.00	%	8.55	tons VOC/year	8.55	tons VOC/year
Carton Assembly	4.74E+03	gal/month	0.1	lb/gal	0.00	%	0.24	tons VOC/month	0.22	tons VOC/month
	2.12E+04	gal/year	0.1	lb/gal	0.00	%	1.06	tons VOC/year	1.00	tons VOC/year
Bottle Label Application	3.02E+04	gal/month	0.19	lb/gal	0.00	%	2.86	tons VOC/month	2.86	tons VOC/month
	1.37E+05	gal/yr	0.19	lb/gal	0.00	%	13.00	tons VOC/year	8.00	tons VOC/year
Defilling: Bottles	3.42E+05	lb glass/month	0.001	lb/lb glass	0.00	%	0.17	tons VOC/month	-	-
	3.50E+06	lb glass/year	0.001	lb/lb glass	0.00	%	1.75	tons VOC/year	-	-
Defilling: Cans	7.75E+04	lb alum/month	0.035	lb/lb alum	0.00	%	1.36	tons VOC/month	-	-
	3.00E+05	lb alum/year	0.035	lb/lb alum	0.00	%	5.25	tons VOC/year	-	-
Conditioning: Total	-	-	-	-	-	-	1.53	tons VOC/month	1.54	tons VOC/month
	-	-	-	-	-	-	7.00	tons VOC/year	7.00	tons VOC/year

Final Limits

Process	Capacity		Emission Factor		Control Efficiency		Emission Rate		Emission Limit	
Packaging: Bottles	5.52E+05	bbl/month	36	lb/1000 bbl	0.00	%	9.93	tons VOC/month	-	-
	2.50E+06	bbl/year	36	lb/1000 bbl	0.00	%	45.00	tons VOC/year	-	-
Packaging: Cans	1.10E+06	bbl/month	37.5	lb/1000 bbl	0.00	%	20.69	tons VOC/month	-	-
	5.00E+06	bbl/year	37.5	lb/1000 bbl	0.00	%	93.75	tons VOC/year	-	-
Packaging: Kegs	5.52E+05	bbl/month	0.675	lb/1000 bbl	0.00	%	0.19	tons VOC/month	-	-
	2.50E+06	bbl/year	0.675	lb/1000 bbl	0.00	%	0.84	tons VOC/year	-	-
Packaging: Total	-	-	-	-	-	-	30.80	tons VOC/month	30.80	tons VOC/month
	-	-	-	-	-	-	139.59	tons VOC/year	140.00	tons VOC/year
Conveyor Line Lubrication	1.52E+03	gal/month	2.32	lb/gal	0.00	%	1.76	tons VOC/month	1.76	tons VOC/month
	6.90E+03	gal/year	2.32	lb/gal	0.00	%	8.00	tons VOC/year	8.00	tons VOC/year
Product Marking	5.23E+02	gal/month	9.28	lb/gal	0.00	%	2.42	tons VOC/month	2.42	tons VOC/month
	2.37E+03	gal/yr	9.28	lb/gal	0.00	%	11.00	tons VOC/year	11.00	tons VOC/year
Carton Assembly	4.74E+03	gal/month	0.1	lb/gal	0.00	%	0.24	tons VOC/month	0.22	tons VOC/month
	2.12E+04	gal/year	0.1	lb/gal	0.00	%	1.06	tons VOC/year	1.00	tons VOC/year
Bottle Label Application	3.71E+04	gal/month	0.19	lb/gal	0.00	%	3.52	tons VOC/month	3.52	tons VOC/month
	1.68E+05	gal/yr	0.19	lb/gal	0.00	%	16.00	tons VOC/year	16.00	tons VOC/year
Defilling: Bottles	3.42E+05	lb glass/month	0.001	lb/lb glass	0.00	%	0.17	tons VOC/month	-	-
	3.50E+06	lb glass/year	0.001	lb/lb glass	0.00	%	1.75	tons VOC/year	-	-
Defilling: Cans	7.75E+04	lb alum/month	0.035	lb/lb alum	0.00	%	1.36	tons VOC/month	-	-
	3.00E+05	lb alum/year	0.035	lb/lb alum	0.00	%	5.25	tons VOC/year	-	-
Conditioning: Total	-	-	-	-	-	-	1.53	tons VOC/month	1.54	tons VOC/month
	-	-	-	-	-	-	7.00	tons VOC/year	7.00	tons VOC/year

Attachment D

Fabric Filter CAM Plan

**Fabric Filter Compliance Assurance Monitoring Plan
 (Unit 10)**

Indicator	Indicator 1-A	Indicator 1-B	Indicator 2
Measurement approach	Opacity	Visible Emission Evaluation (optional - to determine if excursion occurs)	Periodic Structural Inspections
	At a minimum of once per week, visible emission observations conducted at each control device emission point.	Method 9 VEE in accordance with 40 CFR 60, Appendix A conducted optionally to determine if an excursion occurs. Results recorded upon completion of each Method 9. If visible emissions are observed by Indicator 1-A and a Method 9 VEE is not conducted, then an excursion has occurred.	Monthly external bag filter inspections by a qualified employee. Results recorded monthly. Annual internal bag filter inspections by a qualified employee. Results recorded upon completion of each inspection.
Indicator range	An excursion is defined as the presence of any visible emission from the control device unless otherwise determined by a Method 9 VEE.	An excursion is defined as an average opacity greater than 5% during one six-minute period in any one hour.	An excursion is defined as failure to perform the monthly or annual inspection of bag filters. Excursions trigger an inspection, corrective action and a reporting requirement.
Quality Improvement Plan (QIP) Threshold	2 excursions in a 2 week period per each control device	2 excursions in a 2 week period per each control device.	NA
<u>Performance criteria:</u>			
Data Representativeness	Observation of visible emissions indicates possible damage to bag filter.	Observation of visible emissions greater than 5% indicates replacement or maintenance of bag filters is necessary.	Bags in the fabric filters shall be inspected visually for deterioration and remaining bag life monitored.
Verification of operational status	Records that indicate time, facility operational status and results of each observation.	Pressure drop across each filter.	Pressure drop across each filter.
QA/QC practices and criteria	Qualified personnel to perform observations.	Trained personnel shall perform Method 9.	Qualified personnel perform the inspection and maintenance.
Monitoring frequency and data collection procedure	At a minimum of once per week observation.	Upon the observation of visible emissions from any fabric filter.	Monthly and annually inspections.